North of 60

Environmental Studies No. 5

A Summary of Fisheries Data Collected for the Land Use Information Map Series During 1975 and 1976

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B.G. Sutherland
W.R. Golke
Department of Fisheries and Environment
Fisheries and Marine Service

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Cette publication peut aussi être obtenue en français.

PREFACE

The Land Use Information Map Series is now entering its eighth year of research in the Canadian North. During the past seven years, project staff have completed reconnaissance-scale environmental and social mapping for the western half of the land area north of 60°, or nearly 20 percent of Canada. A number of scientists and researchers have contributed to this project since 1971 and all are confident that the high standard of their work has helped the maps to become a key tool for land and resource management in the north.

Project staff have continually endeavoured to maintain close contact with the users of the maps produced. Whenever possible, we have tried to explain the proper application of the data shown on the maps, and to describe the research methods used. Despite that, it seems that many users would appreciate supplementary materials to help them understand and effectively use the maps now available. Our response to this need has been to develop an audio-visual presentation for staff training, as well as a series of user handbooks. These handbooks describe research methods for three subject areas: recreation-tourism, wildlife resources, and fisheries resources.

It is our hope that this handbook on fisheries research will provide users with an insight into the survey techniques and sampling methods used in the preparation of fisheries information for the Land Use Information Map Series. We also hope that the provision of basic background data will assist specialist users in interpreting and applying the material found on the maps.

I am grateful to Bruce Sutherland and Bill Golke for undertaking the field surveys in sometimes very uncomfortable conditions, and for preparing their field notes for publication. Special thanks are due to Jeff Stein for guiding this handbook through to completion.

Ken Taylor
Project Coordinator
Land Use Information Series
Lands Directorate
Environment Canada
Ottawa, K1A 0E7
Spring, 1978

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Sincere appreciation is extended to John Hunt, Greg McKinnon and Vic Gillman, Fisheries and Marine Service personnel who provided equipment and logistical assistance during the surveys.

Special thanks to Jeff Stein, Head, Impact Assessment Division, Fisheries and Marine Service, Winnipeg for reviewing the report and exhibiting extreme patience during its formation.

Grateful thanks to residents of the Northwest Territories communities within the study areas for their information on fish resources.

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INTRODUCTION

The Department of Indian and Northern Affairs is responsible for the management of land and water resources in the Yukon and Northwest Territories and for ensuring that the benefits produced by the development of those resources are not obtained at the expense of extensive or unnecessary environmental degradation. To fulfill these responsibilities, the Department relies, in part, on regulations issued under the authority of the Territorial Lands Act and the Northern Inland Waters Act. The Arctic Land Use Research (ALUR) Program was established by the Department in order to generate baseline information and to provide research support for the implementation and application of these regulations.

The Environmental Management Service of Fisheries and Environment Canada has undertaken the preparation of a series of land use information maps as part of the ALUR Program. The maps which are produced at a scale of 1:250,000, summarize information on renewable resources and related human activities. They are an essential component of the information base that is being established to facilitate comprehensive regional planning and a managed approach to development and environmental protection.

Much of the basic data from which the maps are compiled is supplied by federal and territorial agencies. Northern residents also provide information on hunting, trapping, fishing and recreation.

In order to present the map series in a comprehensive format and due to the number of contributors of information, the maps highlight the most important data available. Other basic background data has often been filed away without being incorporated into an accessible reference.

The purpose of this report is to provide such data based on fisheries field operations and literature reviews in order to compliment the map series. The report contains a general description of the river systems sampled and tabular results of fish species, numbers caught, fish maturity, water temperatures and dates of sampling. This report is based on information compiled during the summers and falls of 1975 and 1976.

DESCRIPTION OF STUDY AREAS

The 1975 survey of fish resources extended from the north shore of Great Bear Lake to the Arctic coast bounded on the west by the Anderson River and on the east by McTavish Arm of Great Bear Lake north to the Arctic coast including the drainage area of the Harding River (Fig. 1). Seventeen map sheets of the 1:250,000 scale comprise the area. Field work was conducted from late June to July 30, from base camps at Colville Lake, Paulatuk and Bluenose Lake. Access to rivers and lakes was by helicopter and fixed wing aircraft.

The 1976 survey consisted of 2 distinct areas. The Coronation Gulf area (Fig. 1) east from the headwaters of the Rae and Richardson Rivers to Kent Peninsula and Bathurst Inlet and inland south from the Arctic coast 120 km (75 mi). This area was comprised of 8 map sheets of the 1:250,000 scale. The second survey area was that of Banks Island totalling 9 map sheets of the 1:250,000 scale (Fig. 2).

The Coronation Gulf study was conducted from late June to mid July and in early August for 9 days. Base camps were established at Coppermine and Bathurst Inlet. The Banks Island survey was conducted from mid July to August 1 and operated from a base camp at Sachs Harbour. A 3 day camp was established at Johnson Point to enable sampling of the northeast portions of the island. The 1976 survey also utilized helicopter and fixed wing aircraft to gain access to sample locations on lakes and streams.

All of the larger rivers flowing to the west coast of Banks Island have a number of common characteristics. A general description is given here to avoid repetition in the notes on individual rivers.

The entire western side of the island lies in the Island Coastal Plain physiographic region. On Banks Island this plain is characterized by low rolling hills and well defined drainages with alluvial plains. Low westward sloping terraces border the major stream valleys. Inland at an elevation of 91 m (300 ft) this region merges with the eastern plain of the Victoria Lowlands which also slope gently to the west.

The major rivers originate in the hills of mid to eastern Banks Island. The upper and central reaches generally have moderately deep, narrow channels. The lower reaches of the rivers are shallower and braided channels occur over gravel and pebble beds. The river mouths form wide deltas where flow is more sluggish and the deposition of silt in mud flats is prevalent. The broad flat river valleys near the coast contain many small shallow lakes or ponds through areas of tundra polygons. Most of the rivers were shallow, swift and clear in July and it is likely that most of them cease flowing in winter.

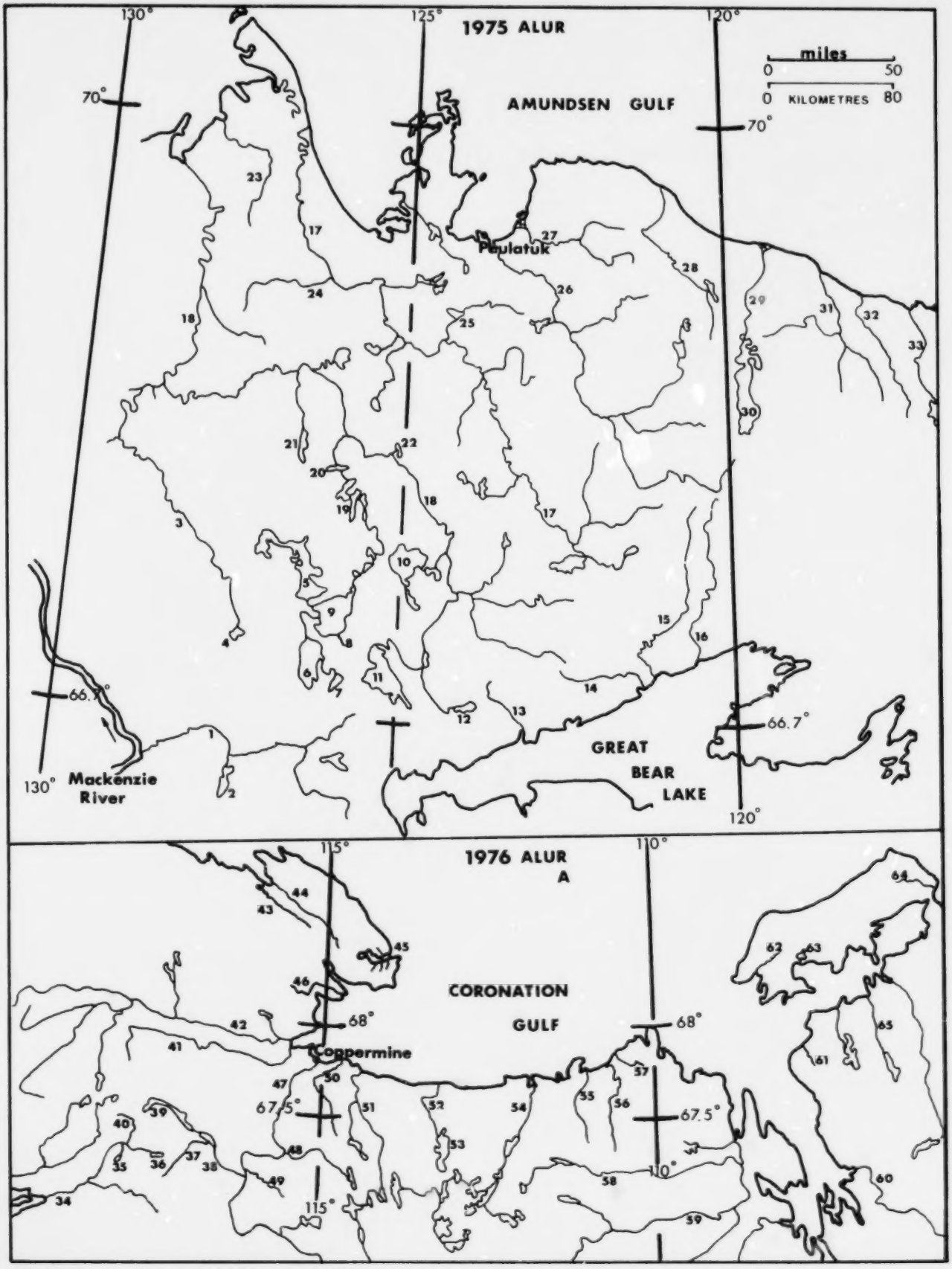

FIGURE 1: Map of 1975 and 1976 ALUR study areas indicating river systems sampled.

Figure 1: Legend

1975 ALUR

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1976 ALUR A

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62.	Walker Bay River	60
63.	Nauyuk Lake	61
64.	Beaufort River	62
65.	Koignuk River	63

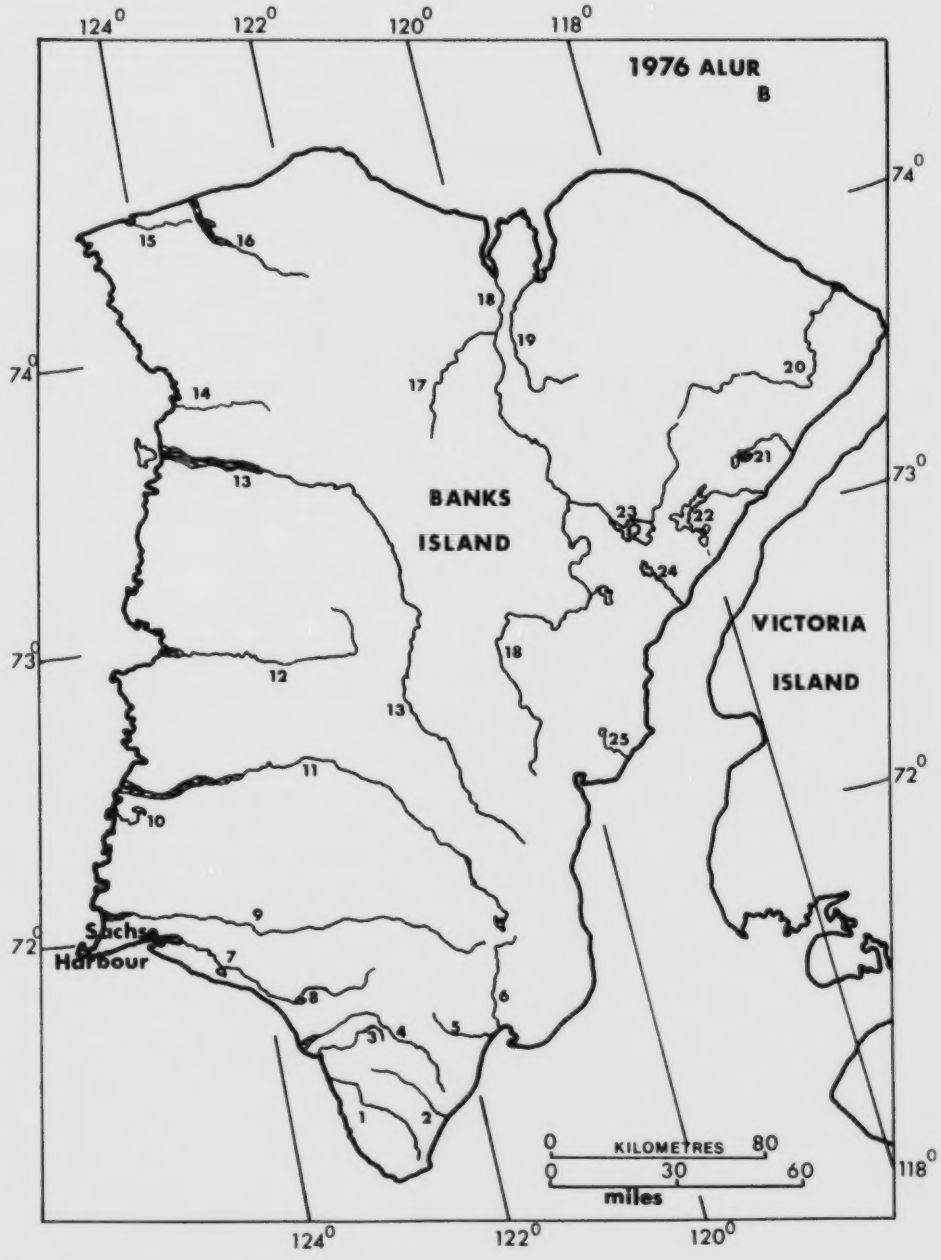

FIGURE 2: Map of Banks Island showing river systems sampled during 1976 ALUR study.

Figure 2: Legend

		Page			Page
1.	Rufus River	65	14.	Burnett Bay Creek	79
2.	Nelson River	66	15.	Bar Harbour Creek	79
3.	Atitok River	67	16.	Ballast Brook	79
4.	Masik River	68	17.	Muskox River	80
5.	Sandhill River	69	18.	Thomsen River	80
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7.	Sachs River	71	20.	Parker River	84
8.	Raddi Lake	71	21.	Bow Lake	85
9.	Kellett River	73	22.	Lake 305	86
10.	Sik Sik Lake	74	23.	Lake 242	80
11.	Big River	75	24.	Johnson Point Headwater Lake	87
12.	Storkerson River	77	25.	Unnamed Lake	87
13.	Bernard River	78			

MATERIALS AND METHODS

Biological sampling equipment and techniques utilized in the 1975 and 1976 ALUR programs were identical, beach seines in streams and along some lake shores, and gill nets in lakes. Dipnetting and angling were conducted but to a limited extent.

The beach seines were 9.2 m (30 ft) in length, 1.22 m (4 ft) in depth with 0.6 cm (0.125 in) mesh. These were used in pools and low flow areas to capture young fish of the major species and also adults and young of other indigenous species.

Gill nets were generally of the following dimensions: 22.9 m (25 yd) in length and 1.52 m (5 ft) in depth, with 7.6 cm (3 in) stretched nylon mesh. Occasionally a net gang of length 18.3 m (60 ft), depth 1.22 m (4 ft) with 3.05 m (10 ft) sections of 3.8, 5.1, 7.6, 10.2, 12.7, 14.0 cm (1½, 2, 3, 4, 5, 6 in) stretched nylon mesh was utilized in lakes to determine species diversity and size distribution.

Sample locations were chosen by the following criteria:

a) water depth, flow conditions
b) substrate conditions
c) helicopter landing conditions

Fish caught in gill nets were weighed to the nearest gram (g) and measured to the nearest millimeter (mm). In situ stomach analyses were conducted and records kept of the sex and stage of maturity of each fish. Large fish taken during seining operations were analyzed in the same way as gill net catches. Small fish were identified and a small sub-sample preserved in ten percent formalin for laboratory analyses.

Water temperatures were taken by means of a pocket thermometer to the nearest 0.5 degree centigrade (°C).

Information obtained from the field investigations and literature references, pertaining to fish species distribution, abundance, spawning and nursery areas and migration routes was transferred in the laboratory to 1:250,000 map sheets and forwarded to Environmental Management Service, Ottawa for final drafting.

Drainage areas of river were derived by using a compensating polar planimeter and river lengths were derived by using a map measuring wheel. The above calculations were completed on maps of 1:250,000 scale. Stream widths were estimated by eye at sampling locations.

When refering to individual stream reports, it should be noted that the term u/s has been used to mean upstream and d/s denotes downstream. Also, a list of scientific names for the fish species listed appears as Appendix II.

STREAM REPORTS

1 1975 ALUR

HARE INDIAN RIVER (#1 - FIG. 1) and LAC à JACQUES (#2 - FIG. 1).

Length: approx. 240 km (150 mi).

Width: 40-50 meters (130-160 ft) mid summer.

Drainage Area: approx. 23,200 sq km (8,950 sq mi).

Description:

The Hare Indian River flows generally west to the Mackenzie River, entering just north of the town of Fort Good Hope. Its tributaries and lakes drain the area west of Smith Arm of Great Bear Lake. Baseline data of the fish resources of this river and its tributaries was compiled by Fisheries and Marine Service personnel in 1971 and 1972 as part of the Mackenzie River environmental studies (Dryden et al. 1973). These data are presented in Appendix I.
The 1975 ALUR study was conducted in the headwaters of the river and one tributary, the Bluefish River.

Sample Location Data:

Date	Location	Method	Fish Species
09-07-75	Hare Indian River 50 km u/s Lac à Jacques	seine	Arctic grayling lake chub slimy sculpin northern pike
09-07-75	Bluefish River	seine	northern pike

KATSEYEDIE RIVER (#13 - FIG. 1)

Length: 35 km (22 mi).

Width: 10 m (33 ft).

Drainage Area: 750 sq km (290 sq mi) into Great Bear Lake.

Description:

This river flows south into Smith Arm of Great Bear Lake. It occupies a valley between the eastern limit of Big Spruce Hills on the west and an eastern extension of the Colville Hills. Except for several sq km in the Big Spruce Hills the entire drainage area is forested. The river bed in the headwaters is generally gravel while the lower river is more bouldery. A deep, quiet channel extends 4-5 km (2.5-3.1 mi) upstream of the mouth which forms a large bay area on the north shore of Great Bear Lake. A sports fishery lodge outpost is situated on this bay. Lake trout comprise most of the catch of the outpost and are known to ascend the deep channeled river mouth. Arctic grayling, round whitefish and cisco ascend the river to spawn in middle and upper sections.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
11-07-75	15 km (9.3 mi) u/s of mouth water temp. 20°C	seine	26 grayling	immature
11-07-75	mouth water temp. 12°C	gillnet	10 lake cisco	adults
			7 round whitefish	adults
			1 humpback whitefish	adult
			7 lake trout	adults
			4 grayling	adults

BIG SPRUCE RIVER (#14 - FIG. 1)

Length: 50 km (31.0 mi).

Width: 10 m (30 ft).

Drainage Area: approx 550 sq km (210 sq mi) into Great Bear Lake.

Description:

This stream provides drainage for the eastern portion of the Big Spruce Hills - a lake-dotted uneven plateau which extends 610 m (2000 ft) in elevation. The lower portion of the drainage area is well forested but the extreme headwaters above 458 m (1500 ft) elevation are barren. The stream bed of the headwaters is rocky while the lower 10 km (6.2 mi) is marshy.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
12-07-75	mouth water temp. 20.5°C	seine	24 grayling	immature
12-07-75	15 km (9.3 mi) u/s of mouth water temp. 20.5°C	seine	22 grayling	immature

HALDANE RIVER (#15 - FIG. 1)

Length: 130 km (81 mi).

Width: 15 m (45 ft).

Drainage Area: 4050 sq km (1565 sq mi) into Great Bear Lake.

Description:

The lower portion of the Haldane River drainage area is of the Great Bear Plain physiographical sub-province. This area is well forested with a rolling surface and an abundance of lakes. The majority of lakes are long and narrow lying parallel to each other probably as a result of glaciation. The upper two-thirds of the drainage area is of the Horton Plain physiography. This is a relatively featureless surface rising gently to the north with local relief of usually less than 70 m (200 ft). There are numerous lakes and tributaries but relief is treeless except along the riverbanks within 50-60 km (31-37 mi) of Great Bear Lake.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
30-07-75	mouth water temp. 15°C	seine	25 sucker	immature
			3 round whitefish	immature
			1 humpback whitefish	immature
			1 burbot	immature
			1 ninespine stickleback	adult
			1 slimy sculpin	adult
30-07-75	55 km (34 mi) u/s of mouth	seine	110 grayling	immature
			1 round whitefish	immature

Comments:

The Haldane River and its tributaries are utilized as migration routes, spawning and nursery areas by Arctic grayling and round whitefish.

BLOODY RIVER (#16 - FIG. 1)

Length: 115 km (71 mi).

Width: 6-10 m (20-30 ft).

Drainage Area: 3425 sq km (1325 sq mi) into Dease Arm of Great Bear Lake.

Description:

The lower 25 km (16 mi) of the river flow through a generally flat forested terrain including a marsh area which borders the north shore of Dease Arm. Northern portions of drainage are in the Horton Plains. This is generally a barren area with a few low hills particularly to the east where it borders on the Coronation Hills. There are numerous small headwater lakes and tributaries. The riverbed within 70 km (43 mi) upstream of the mouth has several areas where mud and silt predominate and the water is slightly turbid.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
30-07-75	mouth water temp. 16°C	seine	2 grayling 2 sucker sp 14 ninespine stickleback	immature immature adults
30-07-75	50 km (31 mi) u/s of mouth water temp. 14°C	seine	14 grayling	immature

HORTON RIVER (#17 - FIG. 1) including the WEST RIVER (#24 - FIG. 1) and FALLAIZE LAKE (#25 - FIG. 1)

Length: 400 km (248 mi).

Width: 200 m (656 ft) at 10 km (6.2 mi) u/s of mouth.

Drainage Area: 26,700 sq km (10,300 sq mi) draining to Amundsen Gulf.

Description:

The drainage area extends from approximately 80 km (50 mi) north of Great Bear Lake to the western shore of Franklin Bay. It lies within two physiographic regions - the Anderson Plain (lower 160 km (100 mi) of the river) and the Horton Plain (upper river). The former is covered by a sheet of glacial drift and outwash while bedrock is often exposed in the latter. The river valley of the lower 100 km (62 mi) is generally from 2 to 5 km (1.3-3.0 mi) in width and from 61-244 m (200-800 ft) below the surface elevation of the surrounding plain. The river in most areas has a gravel bed with occasional rocky stretches. Further inland the valley is narrower and shallower with occasional cliffs of sedimentary rock. Rapids are more prevalent in the middle section of the river. The upper portion of the drainage area is well forested to the east of the river. The entire river valley is treed to within 20 km (12 mi) of the mouth. Horton Lake, approximately 320 km (199 mi) south-southeast of the river mouth, is the largest headwater lake and has a maximum length of 25 km (15.5 mi).

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
16-07-75	15 km (9.3 mi) u/s of mouth water temp. 15°C	seine	1 sucker sp 3 slimy sculpin	immature adults
13-07-75	junc. Horton and West Rivers - FIG. 1 #24 Water temp. 14°C	seine	9 grayling 2 sucker sp 13 round whitefish 2 slimy sculpin	immature immature immature adults
18-07-75	creek draining Delesse Lake water temp. 16°C	seine	200 sucker sp 38 grayling	immature immature
18-07-75	junc. Horton and Whaleman Rivers water temp. 14.5°C	seine	5 grayling	immature

Date	Location	Method	Fish Species	Remarks
18-07-75	outlet of Fallaize Lake water temp. 13°C FIG. 1 - #25	seine	2 slimy sculpin	adults
			1 ninespine stickleback	adult
			86 whitefish sp	immature
20-07-75	Gus Lake 69°11'N and 123°50'W water temp. 6°C	gillnet	3 Arctic char	adults
			6 lake trout	adults
30-07-75	Horton River headwater 67°44'N and 120°57'W water temp. 12°C	seine	2 grayling	immature
			2 ninespine stickleback	adults

Comments:

Residents of Paulatuk report Arctic char are present in the lower reaches of the Horton River. A gill net set in the lake at 69°13'N and 123°59'W on 20-07-75 caught no fish. Water temperature was 9°C. Residents of Paulatuk report lake trout and Arctic char are present in this lake known locally as Salmon Lake.

Sucker species captured in all instances were presumably longnose sucker.

ANDERSON RIVER (#18 - FIG. 1)

Length: 600 km (375 mi).

Width: 1 km (1100 yd) above delta mouth.

Drainage Area: 54,400 sq km (21,000 sq mi) into Wood Bay of Beaufort Sea.

Description:

The lower 80-85% of the Anderson River (i.e. that area west and north of Aubrey Lake, FIG. 1 - #5) lies in the Anderson Plain physiographic region. This area is generally covered by a sheet of glacial drift and outwash. The terrain is undulating and some inland higher levels are rocky. Near the Arctic coast is a low area of tundra polygons dotted with lakes. The Anderson River widens at its mouth to form a delta of approximately 5 km (3.1 mi). Inland from the coast the main stream valleys and lake drainages generally lie at elevations several hundred feet below the surrounding surface. Trees occur throughout the drainage area to 70 km (43.5 mi) from the coast.

The drainage area east and south of Aubrey Lake lies in the Colville Hills region. Here several hills and ridges with elevations of up to 671 m (2200 ft) rise above the hollows where the largest headwater lakes are situated at elevations of 244-275 m (800-900 ft). North of Lac Maunoir (FIG. 1 - #10) the river flows through the western portion of the Horton Plain where bedrock is more commonly exposed.

The Carnwath River (FIG. 1 - #3) and most of the upper Anderson River flow between gently sloping well vegetated banks. The riverbed is generally stony with some areas of sand/silt accumulation. The latter is particularly prevalent southeast of Lac Maunoir.

Water Survey of Canada maintains a discharge station just below the junction of the Carnwath and Anderson Rivers. For 1975 it recorded a minimum discharge of 11.7 cms (412 cfs) in early April and a maximum discharge greater than 594 cms (21,000 cfs) in May.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
22-07-75	Anderson River 50 km (31 mi) u/s of mouth water temp. 12°C	seine	17 grayling 75 sucker sp 2 round whitefish	immature immature immature
06-07-75	Anderson River 67°50'N and 124°45'W water temp. 16°C	seine	sucker sp grayling whitefish sp burbot slimy sculpin	fry immature immature immature adult

Comments:

Residents of Colville Lake report that inconnu and ciscos are also present in the Anderson River.

The following lakes and tributaries within the Anderson River drainage area were also sampled. All fish taken were adults except where noted.

SIMPSON LAKE (#21 - FIG. 1)

Date	Location	Method	Fish Species
26-06-75	north end water temp. 15°C	gillnet	1 humpback whitefish 2 round whitefish 1 burbot
26-06-75	south end water temp. 16°C	gillnet	1 grayling 5 round whitefish 4 lake trout

GASSEND LAKE (#20 - FIG. 1)

Date	Location	Method	Fish Species
26-06-75	outlet water temp. 16°C	gillnet	3 grayling 1 broad whitefish 1 humpback whitefish 2 round whitefish 5 northern pike

EWARIEGE LAKE (#22 - FIG. 1)

Date	Location	Method	Fish Species
26-06-75	north end water temp. 21°C	gillnet	2 humpback whitefish 1 broad whitefish 1 northern pike 1 lake trout

NIWELIN LAKE (#19 - FIG. 1)

Date	Location	Method	Fish Species
04-07-75	outlet stream water temp. 16.5°C	seine	8 slimy sculpin 1 ninespine stickleback
04-07-75	lake outlet water temp. 16.5°C	gillnet	27 northern pike 4 humpback whitefish 3 broad whitefish

Date	Location	Method	Fish Species
04-07-75	u/s of connecting lake water temp. 16°C	gillnet	2 lake trout 1 humpback whitefish 14 northern pike

COLVILLE LAKE (#9 - FIG. 1)

Date	Location	Method	Fish Species
07-07-75	east shore at 18 mile creek water temp. 15.5°C	gillnet	4 northern pike 1 grayling
07-07-75	headwater lake of 18 mile creek water temp. 18°C	gillnet	3 northern pike

Comment:

The settlement of Colville Lake is situated on the southeast shore of the lake and a considerable amount of domestic fishing occurs in the southeast portion of the lake. A sports fishing lodge outpost is situated at the north end of the lake on the stream draining the lake.

BLOODY PACK CREEK (#8 - FIG. 1), a tributary flowing into Colville Lake.

Date	Location	Method	Fish Species	Remarks
04-07-75	u/s of mouth	seine	20 grayling	immature
04-07-75	mouth at Colville Lake	seine	60 whitefish sp. 1 ninespine stickleback	fry adult

LAC MAUNOIR (#10 - FIG. 1)

Date	Location	Method	Fish Species
04-07-75	south end water temp. 14.5°C	gillnet	1 northern pike

Comment:

Residents of Colville Lake report lake trout and whitefish are also present here.

LAC DES BOIS (#11 - FIG. 1)

Date	Location	Method	Fish Species
07-07-75	southwest bay water temp. 11°C	gillnet	5 lake trout 6 humpback whitefish 1 round whitefish

TWEED LAKE (#7 - FIG. 1)

Date	Location	Method	Fish Species
07-07-75	north end water temp. 18°C	gillnet	2 humpback whitefish

LAC BELOT (#6 - FIG. 1)

Date	Location	Method	Fish Species
07-07-75	north end water temp. 11.5°C	gillnet	2 round whitefish 1 northern pike 4 lake trout

AUBREY LAKE (#5 - FIG. 1)

Date	Location	Method	Fish Species
07-07-75	west side point water temp. 13°C	gillnet	2 humpback whitefish 7 round whitefish 4 lake trout

TADEK LAKE (#4 - FIG. 1)

Date	Location	Method	Fish Species
09-07-75	outlet water temp. 20.5°C	gillnet	11 northern pike 1 lake trout

KILEKALE LAKE (#12 - FIG. 1)

Date	Location	Method	Fish Species
11-07-75	off island in east end water temp. 20.5°C	gillnet	11 northern pike 3 humpback whitefish 1 broad whitefish

CARNWATH RIVER (#3 - FIG. 1)

Date	Location	Method	Fish Species	Remarks
09-07-75	d/s of Tadek Lake water temp. 21°C	seine	50 sucker sp 22 grayling 2 slimy sculpin	immature immature adults

HORNADAY RIVER (#26 - FIG. 1)

Length: 260 km (162 mi).

Width: 250 m (200 yd) at mouth.

Drainage Area: 14,670 sq km (5664 sq mi) into Darnley Bay of Amundsen Gulf.

Description:

South of Darnley Bay the Arctic coastline extends inland 10-12 km (6.2-7.5 mi) forming a relatively flat plain. The lower portion of the Hornaday River meanders across this plain and is entrenched in a shallow valley. South of the plain (and roughly paralleling the coast) there is an abrupt rise along an escarpment of 153-183 m (500-600 ft). Inland of this escarpment the river channel is situated 92-183 m (300-600 ft) below the surface elevation and is bounded by cliffs of sedimentary rock. The riverbed is predominantly sand and gravel near the coast but changes to rocky areas with rapids about 25 km (15.5 mi) inland. At approximately 45 km (28.0 mi) upstream of the mouth there exists a sheer waterfall of 23-38 m (75-125 ft). This blocks all further upstream fish migrations. Above the falls the river gorge is shallower with cliffs of 31-122 m (100-400 ft). Upstream 70-80 km (44-50 mi) from the mouth the river flows through a broad shallow gravel bottomed valley.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
15-07-75	mouth water temp. 18°C	seine	6 grayling 2 slimy sculpin	immature adults
15-07-75	outlet creek Seven Islands Lake 69°17'N and 122°58'W water temp. 18°C	seine	4 slimy sculpin 1 *Salvelinus* sp	adults immature
16-07-75	Seven Islands Lake water temp. 13°C	gillnet	negative	
20-07-75	Seven Islands Lake water temp. 11.5°C	gillnet	1 Arctic char 5 lake trout	adult adults
16-07-75	Hornaday River at Akluk Creek water temp. 13.5°C	gillnet	1 Arctic char 2 grayling 1 longnose sucker 1 broad whitefish	adult adults adult adult

Date	Location	Method	Fish Species	Remarks
23-07-75	Hornaday River 68°54'N and 122°41'W u/s of falls water temp. 8°C	seine	1 lake trout 10 whitefish sp.	adult immature
23-07-75	Hornaday River 68°20'N and 121°58'W water temp. 8°C	seine	5 whitefish sp 4 sucker sp.	immature immature
27-07-75	headwater lake 68°41'N and 120°42'W water temp. 11.5°C	gillnet	1 humpback whitefish 2 lake trout	adult adults
28-07-75	headwater tributary water temp. 14°C	seine	9 grayling	immature
30-07-75	mainstem headwater water temp. 13°C	seine	2 grayling 2 ninespine stickleback 2 slimy sculpin	immature adults adults

Comments:

The lower Hornaday River from the coast upstream to the falls is a migration route for Arctic char to spawning areas in the late fall. Residents of Paulatuk commercial fish the river for this species from camps near Rummy Creek.

BROCK RIVER (#27 - FIG. 1)

Length: 90 km (56 mi).

Width: 15 m (49 ft) at 40 km (25 mi) u/s of mouth.

Drainage Area: 3000 sq km (1160 sq mi) into southeast Darnley Bay of Amundsen Gulf.

Description:

The drainage area, except near the coast, lies in the Melville Hills. This area is characterized by slightly folded and faulted Proterozoic strata giving rise to scarps and mesas up to 763 m (2500 ft) above sea level. The extreme headwater branches, 70-80 km (44-50 mi) east of the mouth, originate at elevations of 458-610 m (1500-2000 ft) and converge in deep ravines having walls of 92-183 m (300-600 ft). Between 35-60 km (22-37 mi) east of the mouth the main branches of the river flow in shallower, less abrupt valleys within 92 m (300 ft) of the surface elevations. About 35 km (22 mi) east of the mouth the river enters a canyon with walls of bedrock and talus slopes rising to 183 m (600 ft) above the riverbed. The river in this region consists of a series of rapids. The elevation of the riverbed in the deepest portion of the canyon drops 92 m (300 ft) within 10 km (6.2 mi). Proceeding downstream at 20 km (12.4 mi) from the mouth the canyon widens to a deep valley and the final 10 km (6.2 mi) of the river wanders across the coastal lowland. The riverbed is generally of broken rock or gravel and the water in July was extremely clear becoming more turbid within a few km of the mouth.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
15-07-75	Fish Lake outlet 69°32'N and 122°18'W water temp. 18°C	seine	6 grayling 16 ninespine stickleback 7 boreal smelt	immature adults immature
15-07-75	40 km (25 mi) u/s of mouth water temp. 16°C	seine	negative	
15-07-75	near mouth water temp. 17°C	seine	2 slimy sculpin	adults
16-07-75	Siolik Lake 69°29'N and 122°47'W water temp. 13°C	gillnet	6 lake trout	adults
20-07-75	Fish Lake 69°33'N and 122°17'W water temp. 11°C	gillnet	2 Arctic char 3 lake cisco 1 lake trout	adults adults adult

Comments:

Residents of Paulatuk report that Arctic grayling are also present in the system and also an autumn run of Arctic char from the sea into the river.

ROSCOE RIVER (#28 - FIG. 1)

Length: 110 km (68 mi).

Width: 15 m (45 ft) at 75 km (47 mi) u/s of mouth.

Drainage Area: 2000 sq km (775 sq mi) of eastern Melville Hills into Amundsen Gulf.

Description:

The Roscoe River mainstem originates in the lake at 68°45'N and 120°15'W at an elevation of 573 m (1880 ft). It meanders northwest for a distance of about 75 km (47 mi) then swings northeast and north for another 35 km (22 mi) to the Arctic coast. Most of the length of the river is through an area of tundra polygons and ponds which occupy much of the surface between Melville Hills and the coast. At 20-25 km (12-16 mi) upstream of the mouth the river flows through a narrow ravine over a series of rapids and falls which are impassable to fish migrating upstream.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
27-07-75	headwater lake 69°04'N and 120°14' water temp. 6.5°C	gillnet	1 Arctic char 3 lake trout	adult adults
27-07-75	mainstem d/s of headwater lake	seine	negative	

CROKER RIVER and BLUENOSE LAKE (#29 and 30 - FIG. 1)

Length: river 80 km (50 mi); lake 50 km (31 mi).

Width: river at mouth 18 m (60 ft) main channel.

Drainage Area: 4225 sq km (1630 sq mi).

Description:

The river is gravel bedded and flows through a steep walled ravine for most of its length from Bluenose Lake to the Arctic coast. Near its mouth the river fans out into a 5 km (3.1 mi) wide delta. Bluenose Lake with a surface area of 400 sq km (154 sq mi) is the largest lake in the Horton Plain physiographic sub-province. The lake has an elevation of 558 m (1830 ft) and the surrounding terrain of the Melville Hills plateau is generally flat with an average elevation of 610 m (2000 ft). Sheltered areas between and near the many lakes are covered with tundra vegetation while exposed surfaces are generally base sedimentary rock. Lake shores consist of gravel and fragmented rock.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
27-07-75	Bluenose Lake north end water temp. 8°C	gillnet	2 lake trout	adults
27-07-75	Bluenose Lake northwest corner water temp. 8°C	gillnet	1 Arctic char	adult
30-07-75	west lake adjacent to Bluenose Lake water temp. 11.5°C	gillnet	4 Arctic char 1 lake trout	adults adult
30-07-75	west lake water temp. 14°C	seine	2 Arctic char	immature
29-07-75	Croker River mouth water temp. 10°C	seine	2 Arctic char	immature

Comments:

Residents of Paulatuk and Coppermine report whitefish and grayling are also present in Bluenose Lake.

INMAN RIVER (#31 - FIG. 1)

Length: 85 km (53 mi).

Width: 14 m (45 ft) at 55 km (34 mi) u/s of mouth.

Drainage Area: 3100 sq km (1200 sq mi) into Dolphin and Union Strait.

Description:

The river drains the eastern fringe of the Melville Hills as well as a low lying area of many small lakes to the east of the former. Much of the drainage area is less than 305 m(100 ft) above sea level and consists of rolling hills covered by rock and glacial drift. Water falls occur 10 km (6.2 mi) upstream of the mouth but are not considered to act as an impassible barrier to fish species migrating upstream.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
29-07-75	55 km (34 mi) u/s of mouth water temp. 13°C	seine	3 ninespine stickleback	adults
			2 slimy sculpin	adults
			1 grayling	immature observed
29-07-75	mouth	seine	2 four-horned sculpin	

HOPPNER RIVER (#32 - FIG. 1)

Length: 80 km (50 mi).

Width: not recorded.

Drainage Area: 1050 sq km (405 sq mi) to Dolphin and Union Strait.

Description:

The river has a narrow drainage area which lies in the eastern portion of the Horton Plain. There are several headwater lakes of more than 5 km (3.1 mi) length. The terrain is generally low rolling hills of glacial drift with a few bedrock outcroppings. The river course is free of obstacles which might limit fish migrations.

Comment:

This river was not sampled by fisheries personnel in 1975 but residents of Coppermine report Arctic char, whitefish, lake trout and grayling as being present in the river and its headwater lakes.

HARDING RIVER (#33 - FIG. 1)

Length: 75 km (47 mi).

Width: not recorded.

Drainage Area: 1700 sq km (655 sq mi) into Dolphin and Union Strait.

Description:

The Harding River originates as a large lake at 68°20'N and 116°47'W and its upper 20-25 km (12.4-15.5 mi) is essentially a series of long narrow lakes. Downstream of the lakes the channel narrows and continues for about 40 km (25 mi) through rolling terrain of glacial drift and rock outcrops. The final 25 km (15.5 mi) of the river flow north-northwest in virtually a straight line to the coast. For several km inland the terrain is low and sandy. A waterfall approximately 25 km (15.5 mi) inland from the mouth serves as an impassable barrier to any fish species migrating upstream from the sea.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
27-07-75	mouth at coast water temp. 11°C	seine	1 Arctic char	immature
27-07-75	4 km (2.5 mi) u/s of falls water temp. 13°C	seine	1 whitefish sp 55 grayling	immature immature
27-07-75	headwater lake water temp. 10°C	gillnet	4 lake trout 1 round whitefish	adults adult

Comments:

The headwater lakes probably also contain grayling, other whitefish species and sucker species. The lower section of the river from the coast to the falls is apparently a migration route for Arctic char.

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DEASE RIVER (#34 - FIG. 1) including LAC LA ROUX (#35 - FIG. 1), LAC ROUVIÈRE (#36 - FIG. 1) and SANDY CREEK (#40 - FIG. 1)

Length: 55 km (34 mi).

Width: 150 m (492 ft) near mouth.

Drainage Area: 3205 sq km (1238 sq mi) into Dease Arm of Great Bear Lake.

Description:

The mainstem of the Dease River flows from Lac Rouvière through the southern portion of the Coronation Hills physiographic region. Thin groves of trees occur randomly in the headwater area and most of the river valley is treed. The river is generally quite shallow with a sand, gravel or rock bed. For some distance near 118°W the riverbed is extremely sandy, the river meanders greatly and there are a number of oxbow lakes adjacent to the river.

Lac Le Roux is a very turbid shallow lake with stone or silt shores. It drains north to the Dease River through a low marshy area. The banks are covered by willow in most places and some spruce grows on the northwest shore.

Lac Rouvière is a fairly clear lake of elevation approximating 287 m (940 ft). The western end is shallower than the eastern end and has several islands. A sand bar originating on the south shore almost dissects the lake. The shore is generally rock overlain in most areas with sand and gravel. The banks are well vegetated, particularly near the outlet.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
25-06-76	Dease River near Sandy Creek water temp. 12°C	seine	22 longnose sucker 17 ninespine stickleback	immature adults
03-08-76	Dease River d/s of Sandy Creek water temp. 16°C	seine	5 Arctic grayling 7 longnose sucker	avg. 50 mm - immature avg. 15-25 mm - immature
5-06-76	Lac Rouvière outlet water temp. 7°C	gillnet	2 lake trout	adults
03-08-76	Lac Rouvière near outlet water temp. 15.5°C	gillnet	5 lake trout	adults

Date	Location	Method	Fish Species	Remarks
03-08-76	Lac Rouviere east end water temp. 15.5°C	seine	1 Arctic grayling	immature
			2 cisco sp	immature
			4 slimy sculpin	adults
25-06-76	Lac Le Roux south side water temp. 16°C	gillnet	7 longnose sucker	adults
			4 northern pike	adults
			3 Arctic grayling	adults
			1 humpback whitefish	adult
03-08-76	Lac Le Roux south side	gillnet	9 longnose sucker	adults
			1 northern pike	adult
			2 humpback whitefish	adults
		seine	1 northern pike	immature

Comments:

The Dease River is apparently a migration route for Arctic grayling and longnose sucker moving upstream to spawning areas in May. Some of these fish begin the migration from Great Bear Lake.

TESHIERPI RIVER (#37 - FIG. 1)

Length: 50 km (30 mi).

Width: 80 m (250 ft) near mouth.

Drainage Area: 700 sq km (270 sq mi) into east Dismal Lake (39 - FIG. 1).

Description:

The Teshierpi River drainage is in an area of Hornby Bay Group sedimentary rocks. The lower 10-12 km (6-7 mi) meanders through a valley with Teshierpi Mountain (elevation: 488 m; 1600 ft) on the north and a ridge of hills (elevations up to 671 m; 2200 ft) to the south. The lower portion of the river flows essentially eastward. On the north side of the river about 10 km (6 mi) from the mouth, 2 small lakes drain into the river. Further upstream, the river flows northeast for 15-20 km (9-12 mi) along the Teshierpi Fault. This fault forms a steep-walled valley with the ground rising 500 m (1640 ft) for each 1000 m (3,280 ft) distance from the river. Northwest elevations reach 519 m (1700 ft) and southeast elevations reach 641 m (2100 ft). The river elevation is about 305 m (1000 ft). Upstream, the river branches into two main headwater streams that drain small lakes.

The riverbed is mainly rock with many shallow rapids. The lower 10 km (6 mi) is quieter with sandy/silt shores and in some instances well vegetated shallows. The water is generally clear becoming slightly turbid near the entrance into the lake.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
25-06-76	river 67°16'N and 116°55'W water temp. 7°C	seine	1 ninespine stickleback	adult
			1 Arctic grayling	immature
25-06-76	river mouth water temp. 6°C	seine	1 *Salvelinus* sp	fry, probably lake trout
			6 ninespine stickleback	
25-06-76	river mouth water temp. 6°C	gillnet	2 lake trout	adults
04-08-76	river 67°17'N and 116°53'W water temp. 16°C	seine	4 Arctic grayling	35-40 mm - immature
			2 cisco sp	45-50 mm - immature
			4 ninespine stickleback	adults

Comments:

Much of the river consists of pools and rapids/riffles, providing food habitat for Arctic grayling. This species probably migrates upstream on a spawning run from Dismal Lakes in May-June. Cisco populations of east Dismal Lakes probably migrate up the Teshierpi to spawn sometime from late July to October.

KENDALL RIVER (#38 - FIG. 1)

Length: 27 km (17 mi).

Width: 120 m (400 ft).

Drainage Area: 3000 sq km (1160 sq mi) into the Coppermine River.

Description:

This river flows through a broad valley and consists of stretches of shallow rapids alternating with quieter sand and silt areas. The water on 25-06-76 was clear and 8°C near the mouth. Water Survey of Canada maintains a discharge station near the outlet of Dismal Lakes and a discharge of 99 cms(3540 cfs) was recorded on 25-06-75. Discharge decreased to zero by 28-10-75 and there was no discharge recorded throughout the winter. The date of first spring flow in the Kendall River was not recorded in 1975 but it usually occurs in May. In 1969 the river flowed until the end of December when the discharge was recorded at 0.14 cms(5 cfs).

Comments:

No sampling was done on this river. However, Arctic grayling are thought to occur in the river near its origin probably throughout the summer. They may descend from the Dismal Lakes in the spring to spawn in the river or may enter the river during summer for feeding purposes. If pools in the river are deep enough not to freeze solid during winter, some fish overwintering may occur in the river. There may also be an upstream spawning run of grayling from the Coppermine River in May-June. It is also possible the Arctic char from the Coppermine River may migrate up the Kendall River to spawn in August-September.

DISMAL LAKES (#39 - FIG. 1)

Length: 56 km (35 mi).

Width: 1.5-4 km (1-3 mi).

Drainage Area: approx. 2600 sq km (1000 sq mi) to Coppermine River via Kendall River.

Description:

The Dismal Lakes consist of two major basins connected by a narrows. The lakes are situated on several geological boundaries. The major surface rocks are Proterozoic sedimentary and are visible along stream channels and cliff faces. A line of southwest facing cliffs parallels the western portion of the lake at a distance of 8 or 9 km (5-6 mi) removed from the lake shore to the northeast. The terrain is well vegetated where flat. Willows are abundant along the lake shores especially around inlet streams. There are a few small spruce at the western end of the lake and a greater number at the eastern end and into the Kendall River valley. The lake shore is predominantly gravel or broken rock. Sand and silt banks occur in some places. On 25-06-76 the lake had 80-90% ice cover.

Sample Location Data:

Date		Method	Fish Species	Remarks
24-06-76	lake tributary 67°31'N and 117°33'W water temp. 10°C	seine	2 slimy sculpin 3 ninespine stickleback	adults adults
03-08-76	lake tributary 67°31'N and 117°33'W water temp. 16°C	seine	1 Arctic grayling 1 ninespine stickleback	immature, ≈45 mm adult
24-06-76	lake tributary 67°31'N and 117°33'W water temp. 16°C	gillnet	5 lake trout	adults
03-08-76	lake tributary 67°31'N and 117°33'W water temp. 16°C	gillnet	8 round whitefish 5 lake trout	adults adults
04-08-76	lake outlet at Kendall River water temp. 14°C	seine	14 Arctic grayling 2 slimy sculpin 1 ninespine stickleback	immature avg. 30-40 mm adults adult

Comments:

Lake trout, round whitefish and Arctic grayling appear to be the major fish species of Dismal Lakes. Humpback whitefish and/or Arctic char could also occur. Grayling use the Teshierpi River and probably other inlet streams as spawning areas. Migration runs would occur in May-June.

RICHARDSON RIVER (#41 - FIG. 1)

Length: 130 km (81 mi) mainstem.

Width: 120 m (394 ft) approx. 10 km (6 mi) upstream of mouth.

Drainage Area: 4670 sq km (1804 sq mi) into Richardson Bay of Coronation Gulf.

Description:

The lower 8-10 km (5-6 mi) of this river are broad, quiet and silty. Further upstream the river swings west and becomes gradually swifter, shallower and clearer towards its headwaters. The terrain on both sides of the river is generally covered with vegetation and is marshy in many places. A broken line of basaltic cliffs roughly 10 km (6 mi) to the north and parallel to the Richardson River forms the approximate boundary between the Richardson and Rae river drainage areas. The bed of the river, except for the lower portion, is generally of broken sedimentary rock or mud and gravel. Quiet backwaters are often well vegetated and, in most places, dense growths of willow occupy the riverbanks. Several tributaries from the south drain the multitude of small lakes which lie between topographical ridges of the area.

Cox Lake is the largest lake in the Richardson River drainage area and is situated just north of the river at approximately 116°30'W. It has a maximum length of 10 km (6 mi), an elevation of 107-122 m (350-400 ft), a large island of about 4 km (2.5 mi) length and appears to be quite shallow.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
23-06-76	mainstem 117°30'W water temp. 8°C	seine	1 northern pike	100 mm immature
24-06-76	mainstem 117°00'W	seine	4 ninespine stickleback	adults
			2 longnose sucker	30 mm immature
24-06-76	mainstem 116°05'W	seine	5 longnose sucker	30 mm immature
			1 cisco sp	40 mm immature
			1 slimy sculpin	adult
24-06-76	island at mouth water temp. 10°C	seine	3 broad whitefish	80-90 mm immature
			3 cisco sp	80-90 mm immature
			2 sculpin sp	immature
			1 cod sp	unidentified

Date	Location	Method	Fish Species	Remarks
02-08-76	mainstem 117°15'W water temp. 16°C	seine	10 Arctic grayling	40-45 mm immature
			20 longnose sucker	20 mm immature
03-08-76	mainstem 115°45'W water temp. 15°C	seine	12 northern pike	40-70 mm immature
			2 northern pike	adults
			20 longnose sucker	50-60 mm immature
			2 Arctic grayling	50-60 mm immature
			5 ninespine stickleback	adults
02-08-76	inlet stream north side Cox Lake	seine	50 cisco sp.	60-110 mm immature
			12 ninespine stickleback	adults
			1 slimy sculpin	adult
02-08-76	Cox Lake	gillnet	1 lake trout	adult
			1 Arctic grayling	adult

Comments:

Residents of Coppermine report whitefish in Cox Lake and, if not referring to the cisco population, this could indicate the presence of humpback and/or broad whitefish.

RAE RIVER (#42 - FIG. 1)

Length: 200 km (125 mi).

Width: 200 m (650 ft) at the mouth.

Drainage Area: 9950 sq km (3840 sq mi) into Richardson Bay of Coronation Gulf.

Description:

John Rae's description of the lower 50 km (31 mi) of the river that bears his name is as follows (Richardson 1854):

"Its course is nearly due west, and very straight; about the size of the Dease River; and varying in breadth from 80-200 yards, with a very strong current, and sufficient depth of water for a boat drawing 14 or 15 inches. It flows over a bed of limestone, and is bounded on the north, at the distance of a half mile or less from its banks, by precipices of basalt from 100 to 200 feet high, superimposed on limestone of the same kind as that which forms the bed of the river. At the distance of 9½ miles from the river's mouth, there is a perpendicular fall of 10 feet, which extends across the stream, except a few yards on the north, where the rock slopes so much that, during the spring floods, salmon and whitefish are above to ascend, affording the natives a fine opportunity of spearing them."

The "salmon" Rae refers to would be Arctic char and the "whitefish" one or more of the genus *Coregonus*, likely broad and/or humpback whitefish. The description of the river derives from his excursion on the 17th and 18th of July 1849. It is accurate at present except that the riverbed had accumulated much silt, sand and gravel near the mouth and in quiet areas elsewhere along its course.

Above the portion surveyed by Rae the river flows for much of its length through a broad, gently sloped, well vegetated plain. Willows crowd the banks in many areas. The river originates in a large area of many lakes approximately 100-175 km (62-109 mi) west of its mouth.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
23-06-76	island at mouth water temp. 11°C	seine	1 whitefish sp. 2 cisco sp 3 ninespine stickleback	immature immature adults
23-06-76	mainstem 116°45'W	seine	19 Arctic grayling 2 slimy sculpin	40-70 mm immature adults
23-06-76	mainstem 117°30'W	seine	6 Arctic grayling 2 slimy sculpin 2 slimy sculpin	40-100 mm immature adults

Date	Location	Method	Fish Species	Remarks
02-08-76	mainstem 117°00'W	seine	50 cisco sp	40-130 mm immature
			1 whitefish sp	110 mm immature
			1 longnose sucker	50 mm immature
			1 northern pike	50 mm immature
02-08-76	mainstem 12 km (7.5 mi) u/s of mouth water temp. 15°C	seine	1 broad whitefish	60 mm immature
			1 pond smelt	55 mm immature
			1 round whitefish	45 mm immature
			1 northern pike	190 mm immature
			1 ninespine stickleback	adult
			2 starry flounder	adults
02-08-76	mainstem 10 km (6 mi) u/s of mouth	gillnet	1 least cisco	358 mm adult
			1 longnose sucker	341 mm adult

SOUTH STAPYLTON BAY RIVER (#43 - FIG. 1)

Length: 60 km (37 mi).

Width: 20 m (65 ft) at 10 km (6 mi) upstream of mouth.

Drainage Area: 1230 sq km (475 sq mi) draining to Dolphin and Union Straits.

Description:

The lower reaches of this river meander through a valley between shale and limestone hills. The river drains a flat sometimes marshy plain (elevation 92-122 m; 300-400 ft) south and southeast of Stapylton Bay. There are many lakes within the drainage area.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
26-06-76	mainstem 68°17'N and 115°35'W water temp. 7°C	seine	7 Arctic grayling	adults
			5 ninespine stickleback	adults
			1 slimy sculpin	adult

Comments:

The river may also be used as a migration route for anadromous Arctic char.

EAST STAPYLTON BAY RIVER (#44 - FIG. 1)

Length: 50 km (31 mi).

Width: 50 m (160 ft) near mouth.

Drainage Area: 610 sq km (235 sq mi).

Description:

The lower portion of this river flows through an area of rolling hills covered with broken shale and limestone. There is little vegetation except in slightly sheltered low lying areas. The river shore near the mouth is of sand and gravel with scattered rock fragments. On 26-06-76 there was snow in the shaded depressions between hills, the bay was full of candled ice and the water temperature was 7.5°C.

Sample Location Data:

Date	Location	Method	Fish Species
26-06-76	mouth water temp. 7.5°C	seine	negative
26-06-76	20 km (12 mi) u/s of mouth water temp. 4°C	seine	negative

Comments:

The river would appear suitable for migrations of anadromous Arctic char.

PASLEY COVE STREAMS (#45 - FIG. 1)

Length: N/A.

Width: several streams, each less than 20 m (65 ft).

Drainage Area: 945 sq km (365 sq mi) into Dolphin and Union Strait.

Description:

These are several small streams flowing northeast and emptying into the sandy shallows of Pasley Cove. The drainage extends about 40 km (25 mi) west of Pasley Cove and 15-30 km (9-19 mi) north to south. That part of the drainage area within 20 km (12 mi) west of Pasley Cove is extremely flat and seldom rises more than 31 m (100 ft) above sea level and consists of marsh and shallow lakes in equal proportions.

Further inland the terrain is slightly hilly and the elevation of lakes reaches 46 m (150 ft). The hills are mainly of limestone or shale with many fragments of rock scattered over the surface. The lakes nearer the cove generally have shores of boulders and rock fragments with occasional sand/silt bars.

Sample Location Data:

Date	Location	Method	Fish Species
26-06-76	stream mouths	seine	negative
03-08-76	stream mouths	seine	negative

Comments:

Coppermine residents report that Arctic char migrate between Pasley Cove and the large series of lakes to the south and west via these streams. Also lake trout are reported to be in some of the larger lakes.

John Rae in his 1849 expedition (Richardson 1854) encountered Eskimos with char they "had speared in a rivulet that falls into Pasley Cove". This occurred in early August suggesting the above mentioned migration.

CAPE HEARNE RIVER (#46 - FIG. 1)

Length: 60 km (37 mi).

Width: 50 m (160 ft) near mouth.

Drainage Area: 1480 sq km (570 sq mi) into Coronation Gulf.

Description:

The lower 10 km (6 mi) of this river is bordered by a marshy plain which occupies the promontory between Basil and Kleugenberg Bays. To within 3 km (1.9 mi) of its mouth the river is broad and slow with sand/silt islands. A few hundred meters above the most westerly island is a small waterfall and roughly 12 km (7.5 mi) above this the south branch of the river rushes through a narrow gorge. A series of three falls are situated in the water course within this gorge. The smaller northern branch of the river flows fairly uniformly between well vegetated banks. Its upper reaches drain an area of shale and limestone hills approximately 30 km (19 mi) inland. The northern branch contributes most of the river's total silt load. The mainstem of the river drains an area of lakes and ridges to the west and south. Near the mouth the river was quite silty on 26-06-76, turning the proximate waters of Coronation Gulf a clay color.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
26-06-76	river mouth island water temp. 13°C	seine	27 Arctic grayling 1 sculpin sp	50-120 mm immature immature
26-06-76	north branch 3 km (1.9 mi) u/s of mainstem water temp. 12°C	seine	3 Arctic grayling 3 ninespine stickleback	45-55 mm immature adults
04-08-76	mainstem 68°16'N and 115°25'W water temp. 15°C	seine	2 ninespine stickleback	adults

Comments:

Arctic grayling probably reside in the lower 12 km (8 mi) of the mainstem and the northern branch. Arctic char may also migrate to the falls in the southern branch.

COPPERMINE RIVER (#47 - FIG. 1) including MELVILLE RIVER (#48 - FIG. 1) and MOUSE RIVER (#49 - FIG. 1).

Length: 120 km (75 mi) study area only.

Width: 1 km (.6 mi) at mouth.

Drainage Area: 7150 sq km (2760 sq mi) in the study area; Total: 46,000 sq km (18,000 sq mi).

Description:

The Coppermine River is the largest river flowing into Coronation Gulf. It is generally a fast flowing river with many rapids. The stream bed is strewn with small boulders or broken rock. From Bloody Falls to the coast, a distance of 14 km (9 mi), the river becomes progressively wider, quieter and apparently deeper. The riverbanks are composed mostly of fine clay which forms hills on either side of the river. These clay hills extend for a few kilometers upstream of Bloody Falls. There are several silt and gravel islands in the lower portion of the river and the gulf beyond the mouth. The water becomes progressively more laden with silt from Bloody Falls to the coast. It was greyish-brown near the mouth in late June 1976.

At Bloody Falls the river rushes through a gorge, the walls of which are of dark coloured diabase. At peak flows a discharge of 420 cms(15,000 cfs) is confined to a channel of no more than 30 m (90 ft) width.

About 10 km (6 mi) above the falls the clay-gravel hills give way to the more typical channel of the Coppermine River. This typical channel is constricted, in places by canyon walls up to 50 m (160 ft) in height, to little more than 70 m (230 ft) in width and widens in a few places to about 200 m (656 ft).

At 70 km (44 mi) upstream of the mouth the river right angles west for about 25 km (16 mi). In this area the river is paralleled by the Coppermine Mountains to the north and the September Mountains to the south. Mountain elevations rise to 519 m (1700 ft) compared to the river elevation of 198-214 m (650-700 ft). The mountains and elevated valleys are formed mostly of resistant lava flows rather than sedimentary rocks.

The river right angles south after the mountainous region and flowing north receives many tributaries, the largest of which is the Kendall River. The riverbed from Bloody Falls south was primarily rock and the water fast flowing but only slightly turbid.

Small spruce begin to appear in the river valley at Muskox Rapids (60 km; 38 mi SSW of the mouth) and increase in size and numbers progressively upstream and in some of the tributary valleys, notably that of Melville Creek (#48 - FIG. 1).

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
01-08-76	island 2 km (1.2 mi) u/s of mouth	seine	1 Arctic grayling	32 mm immature
		gillnet	1 broad whitefish	adult
			1 lake trout	adult
			7 longnose sucker	adults
09-08-76	u km (4 mi) u/s of mouth	seine	10 whitefish sp	50 mm immature
			2 round whitefish	immature
			1 broad whitefish	immature
			4 longnose sucker	25 mm immature
27-06-76	d/s of Bloody Falls water temp. 11°C	seine	4 Arctic char	immature
27-06-76	near Mouse River mouth water temp. 11°C	seine	11 Arctic char	30 mm fry
			1 burbot	75 mm immature

Comments:

In addition to the above fish species, Coppermine residents reported cisco, Arctic grayling and northern pike from the lower portion of the Coppermine River. The size of the Arctic char run into the Coppermine in August-September is not known but is probably less than 15,000 fish. The distance upstream of the migration is not known although char are found at least as far south as the mouth of the Kendall River (#38 - FIG. 1). Whether or not these char are anadromous is also not confirmed.

Some seining was conducted in Melville Creek (#48 - FIG. 1), and while that tributary appears suitable as a spawning area for char and/or grayling, only slimy sculpin were captured on 27-06-76.

Seining on the Mouse River (#49 - FIG. 1) at 67°00'N on 27-06-76 produced only ninepsine sticklebacks. The lower portion of the stream appears suitable as char and/or grayling spawning areas.

NIPARTOKTUAK RIVER (#50 - FIG. 1)

Length: 70 km (44 mi).

Width: 200 m (650 ft) near the mouth.

Drainage Area: 1220 sq km (471 sq mi) into Coronation Gulf.

Description:

The topography of the drainage area of this river is basically gently slopes rising to the south and southeast and often ending abruptly in cliffs. The broad valleys between ridges are usually well vegetated. Towards the extreme headwaters of the river the terrain becomes more rugged with many large rock outcrops on the surface.

The lower 15-20 km (9-12 mi) of the river meander to the coast with less than a 30 m (98 ft) drop in elevation. The riverbed is mainly silt and gravel and the water carried a fairly heavy silt load on 28-06-76. Upstream the bed becomes rockier, the slope greater and a small waterfall is located about 30 km (19 mi) from the coast. This appeared, from the air, to be a difficult obstacle for migrating fish to pass. Above these falls the upper 20 km (12 mi) of the mainstem consists of a series of shallow riffles, rapids and lakes. The stream bed is composed almost entirely of stones from 5-40 cm (2-16 in) in diameter.

The river originates at two medium sized lakes (5 and 12 km; 3 and 7 mi in length), joined by a short stream. The more westerly of these lakes had 80% ice cover on 28-06-76 and the riverbed at the outlet consisted of large irregular boulders averaging about 1 m (3 ft) in diameter. The easterly lake was quite similar and the connecting stream looked passable for fish.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
28-06-76	island at river mouth water temp. 6°C	seine	9 sculpin sp	adults
			3 Arctic flounder	100 mm avg.
			1 Arctic cisco	160 mm
			1 Arctic char	90 mm
		gillnet	4 broad whitefish	adults
			2 whitefish sp	adults
			3 Arctic cisco	adults
			1 starry flounder	
05-08-76	island at mouth water temp. 12°C	seine	1 sculpin sp	25 mm
			1 cod tent. ID tomcod	75 mm

Date	Location	Method	Fish Species	Remarks
28-06-76	mainstem 67°43'N and 114°52'W	seine	5 slimy sculpin 1 Arctic grayling	20-40 mm 65 mm
28-06-76	lake 67°23'N and 114°45'W	gillnet	11 lake trout	adults
		angling	2 Arctic char	623, 670 mm
04-08-76	lake 67°23'N and 114°45'W	gillnet	2 Arctic char 2 lake trout	415, 596 mm adults

Comments:

Broad whitefish and Arctic cisco utilize the lower portion of the river for spawning and overwintering moving out to brackish water in the summer. The presence of Arctic char in the headwater lake suggests the possibility of an anadromous migration, however, the population of the lakes could also be landlocked.

ASIAK RIVER (#51 - FIG. 1)

Length: 90 km (55 mi).

Width: 250 m (800 ft) near the coast mouth.

Drainage Area: 3060 sq km (1181 sq mi) into Coronation Gulf.

Description:

The topography of this river's drainage area consists of a succession of gentle rises to the south and southeast ending in abrupt drops. The lower 8-10 km (5-6 mi) of the river course through a broad valley 4-8 km (2-5 mi) wide with cliffs of about 70 m (230 ft) to the northwest. At the upper reaches, near Atanik Lake, the topography grades into more of a Laurentian shield type.

From Atanik Lake the river flows north for about 30 km (19 mi). In this stretch it consists of a series of small shallow lakes joined by rapid, shallow streams. The bed is mainly small boulders, some bedrock and the occasional sand/gravel bar. Thirty kilometers (19 mi) north of Atanik Lake, the river widens and is dotted with islands. It veers to the north-northwest and continues thus for 45 km (28 mi) before turning northeast for its last 10 km (6 mi) to the coast.

Downstream of the island-studded bend, the river gradually narrows and has clear, fast water. Within 20 km (12 mi) of the coast there is a series of rapids and a narrow gorge 3-4 km in length (2-2.5 mi). This section of the river, on 28-06-76, appeared that it would present a difficult passage for fish migrating upstream. The final 10 km (6 mi) flow quietly around several meanders before emptying into Coronation Gulf. A slight silt load was noticed in this lower region.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
28-06-76	mouth at coast water temp. 11°C	seine	3 Arctic flounder	avg. 40 mm
			1 sculpin sp	immature
			1 round whitefish	100 mm
05-08-76	mainstem 67°23'N water temp. 14°C	seine	1 Arctic grayling	32 mm immature
			1 slimy sculpin	40 mm
05-08-76	mainstem 67°43'N	seine	2 Arctic grayling	35 mm immature
			1 ninespine stickleback	30 mm

Comments:

Apparently Arctic grayling is the major fish species inhabiting the river. The lower portion also contains round whitefish and possibly the following: broad whitefish, cisco and anadromous Arctic char. Headwater lakes probably contain mainly lake trout.

KUGARYUAK RIVER (#52 - FIG. 1)

Length: 60 km (37 mi).

Width: not estimated.

Drainage Area: 1560 sq km (602 sq mi) into Coronation Gulf.

Description:

The terrain near the coast is grassy sloped tundra which rises gently toward the southeast ending in abrupt cliffs. A portion of the river channel lies along the base of one of these cliffs which almost parallels the coast before veering northeast to the coast near the river mouth. Cliffs of up to 100 m (300 ft) high are present on the northwest side of the lower 15 km (9 mi) of the mainstem and 20 km (12 mi) of a stream-lake system which forms one of the branches of the Kugaryuak River. Further inland and towards the headwater lakes the terrain is of Laurentian shield type.

Rapids occur frequently in this river, the lowest being 5 km (3 mi) from the coast. From an aerial view, none could be judged to constitute a major blockage to fish migrations upstream until a waterfall at approximately 67°32'N and 113°26'W.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
30-06-76	2 km (1 mi) u/s from coast water temp. 4°C	seine	2 broad whitefish 2 starry flounder 1 ninespine stickleback	100-125 mm
29-06-76	mainstem 67°37'N and 113°38' W water temp. 7°C	seine	1 ninespine stickleback	
09-08-76	4 km (2.5 mi) u/s from coast	seine	2 Arctic char 3 whitefish sp 1 broad whitefish 1 ninespine stickleback	65-75 mm 50-70 mm 125 mm

Comments:

Coppermine residents report Arctic grayling are found in the river by the seining location of 67°37'N and 113°38'W. Lake trout are found in Kikerk Lake (#53 - FIG. 1) and probably occur in other headwater lakes.

The broad whitefish found in the lower portion of the river are probably anadromous, venturing at least into brackish water to feed in summer. The extent of their upstream spawning migrations is probably limited to the lower 5-10 (3-6 mi) of the river due to the many rapids.

Evidently the lower portion of the river is used by anadromous Arctic char. Spawning and overwintering likely occur in pools below the first few rapids. Some sport fishing is conducted near the river mouth by anglers flown in from a Great Bear Lake fishing lodge. Total catch is apparently quite small.

KIKERK LAKE (#53 - FIG. 1)

Length: 24 km (15 mi).

Width: 6-8 km (4-5 mi).

Drainage Area: 200 sq km (80 sq mi) into lake then to Coronation Gulf.

Description:

The lake has a surface area of 115 sq km (45 sq mi), elevation 378 m (1240 ft) and a small drainage area. The water is extremely clear and the banks generally drop off quickly. At the north end of the lake the water was 10 m (30 ft) deep no more than 10 m (30 ft) from shore. The visible lakebed is of solid rock overlain in some places by broken rock and boulders of 15-40 cm (6-16 in) diameter. Other areas of shoreline were overlain with gravel. On 29-06-76 there was about 90% ice cover on the lake.

Sample Location Data:

Date	Location	Method	Fish Species
29-06-76	southern tip of lake water temp. 4°C	gillnet	4 lake trout
		angling	1 lake trout
09-08-76	southern tip of lake	angling	1 lake trout
		seine	negative

Comments:

Whitefish and Arctic grayling may also be in the lake but it appears that lake trout is the major species present.

TREE RIVER (#54 - FIG. 1)

Length: 120 km (74 mi).

Width: 100 m (325 ft) near mouth.

Drainage Area: 5900 sq km (2300 sq mi) into Coronation Gulf at Port Epworth.

Description:

The lower half of the Tree River valley is underlain by a formation of Epworth dolomite. The riverbed within 25 km (16 mi) of the coast consists mostly of Pleistocene muds and gravels. Further upstream where the river becomes a series of long lakes the bed material is of broken rock. Inland, the dolomite underlay gives way to typical Laurentian topography based on Precambrian granites. There are rapids and a falls situated 9 km (6 mi) upstream of the coastal river mouth. The falls are of sufficient size to block upstream fish migrations. Upstream of the falls the river is fairly even for about 10 km (6 mi) then frequent rapids are present in both major branches of the river. The series of headwater lakes are generally separated by rapid sections. The water is clear in the upper portions of the river but slightly silty nearer the coast. Water Survey of Canada maintains a discharge recorder at the mouth of the Tree River. For 1975 there was a mean discharge of 31 cms (1100 cfs) with a maximum 138 cms (4930 cfs) occurring July 1 and a minimum 5.5 cms (197 cfs) occurring April 27.

Sample Location Data:

Data	Location	Method	Fish Species	Remarks
30-06-76	67°36'N on mainstem water temp. 4°C	gillnet	5 lake trout 3 broad whitefish	
30-06-76	outlet of lake 67°08'N and 112°25'W water temp. 7°C	gillnet	1 lake trout	
06-08-76	mainstem 67°32'N and 111°57'W	seine	4 slimy sculpin 6 *Salvelinus* sp	fry
		angling	1 lake trout	

Comments:

Thw lower Tree River is utilized by anadromous Arctic char as a spawning, nursery and overwintering area. Coppermine residents, who summer camp at the mouth primarily for sealing, take 450-900 kg (990-1980 lb) of char each year at present. Domestic catches were much higher in the past. An outpost of a Great Bear Lake sport fishing lodge is located at the mouth and the total catch by the sports fishery averages 400 char or about

2000 kg (4400 lb) per annum. The size of the char run is estimated at over 15,000 fish and the run occurs late June to early July and late August to mid September. Most spawning probably occurs 5-8 km (3-5 mi) upstream of the mouth from the first rapids to the base of the falls.

Other fish species encountered at the mouth include lake trout, cisco and whitefish.

ANIALIK RIVER (#55 - FIG. 1)

Length: 25 km (15 mi).

Width: about 30 m (100 ft) at the mouth.

Drainage Area: 589 sq km (227 sq mi) into Grays Bay of Coronation Gulf.

Description:

The river flows through extremely rugged shield country for almost all of its length. It branches into several stems within 20 km (12 mi) of the coast. The riverbed consists mainly of large boulders and the general pattern is a series of narrow lakes connected by narrow fast flowing channels having an abundance of riffles and rapids. Some portions of the river flow for up to 10-15 km (6-9 mi) through remarkably straight channels in the rock.

Sample Location Data:

Date	Location	Method	Fish Species
30-06-76	mainstem	seine	negative
30-06-76	headwater lake water temp. 5.5°C	angling	4 lake trout

UNNAMED RIVER (#56 - FIG. 1)

Length: 40 km (25 mi).

Width: 60 m (200 ft) near mouth.

Drainage Area: 1250 sq km (480 sq mi) into Coronation Gulf south of Hepburn Island.

Description:

The lower few kilometers of this river are similar to the Wentzel River (#57 - FIG. 1), flowing through a sandy coastal area. Ten to 17 km (6-11 mi) from the coast the river flows through another relatively flat sandy region. Between these two sandy areas and in the headwaters, the river flows with many rapids through a rocky terrain. The river drains a region of many small lakes occupying rocky basins. The river was not sampled for fish but appearances suggest that Arctic char could utilize the lower reaches (15 km; 9 mi) as migration and spawning areas.

WENTZEL RIVER (#57 - FIG. 1)

Length: 70 km (44 mi).

Width: 50 m (160 ft) near mouth.

Drainage Area: 1350 sq km (520 sq mi) into Coronation Gulf southeast of Hepburn Island.

Description:

The lower Wentzel River, within 3-4 km (2-2.5 mi) of the coastal mouth, flows through an area of sandy soil. Further inland the terrain changes to rounded granite hills and rugged shield country. The shores of the large lake on the river (15 km; 9 mi from the mouth) are very steep and rocky. The lake is approximately 40 km (25 mi) long. On 08-07-76 this lake had 80% ice cover.

The Wentzel River mainstem flows from the west through a series of lakes and rapids to the southeast extremity of the above mentioned lake. Further upstream several tributaries come in from the south, also consisting of a series of lakes and rapids. There is also a series of rapids between the sandy coastal region and the large lake but it is not known whether or not they block fish migrations.

Discharge near the coast was estimated at 21-28 cms (750-1000 cfs) on 06-07-76.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
08-07-76	large lake southeast arm water temp. 5°C	gillnet	10 lake trout 1 Arctic char	adults adult

Comments:

It is not known if the char population is anadromous or landlocked.

JAMES RIVER (#58 - FIG. 1)

Length: 145 km (90 mi).

Width: estimated 70 m (225 ft) near confluence with Hood River.

Drainage Area: 3800 sq km (1470 sq mi) into Hood River (#59 - FIG. 1) thence Arctic Sound of Bathurst Inlet.

Description:

The upper portion of the James River consists mainly of a series of long lakes (1-3 km; .6- 2.0 mi wide) connected by short stretches of fast water flowing over rock and boulders. Approximately 50 km (30 mi) west of its confluence with the Hood River, the James River narrows, its current increases and the riverbed tends to consist of sand, gravel and small boulders. The lower 15-20 km (9-12 mi) of the river consist of a series of rapids which probably block upstream fish migrations. This portion of the river cuts through the edge of the sedimentary deposit which forms the Wilberforce Hills. The river substrate is mainly rock except for sand and silt within 2 km (1.2 mi) of the confluence with the Hood River. The water in the western portion of the river is clear and only slightly cloudy as it nears the Hood River.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
08-07-76	1 km (.6 mi) u/s of Hood River water temp. 10°C	seine	2 round whitefish	immature
			6 slimy sculpin	adults
			18 Arctic grayling	immature
09-08-76	1 km (.6 mi) u/s of Hood River water temp. 10°C	seine	2 round whitefish	immature
			2 whitefish sp	immature
			2 Arctic grayling	immature
07-08-76	mainstem 109°52'W	seine	11 round whitefish	immature
06-07-76	mainstem a tributary mouth	seine	3 round whitefish	immature
			2 slimy sculpin	
07-08-76	mainstem 110°47'W	seine	1 lake trout	immature
			2 slimy sculpin	adults
09-08-76	mainstem 110°47'W	gillnet	7 lake trout	adults
			2 round whitefish	adults
07-07-76	mainstem 110°57'W water temp. 7°C	gillnet	5 lake trout	adults
			1 round whitefish	adult

Comments:

A geology crew reportedcatching Arctic char in James River waters but these could have been lake trout which exhibit a wide range of colour variation between individuals. Lake Trout occur in the large lakes of the upper mainstem and probably in most of the headwater lakes.

HOOD RIVER (#59 - FIG. 1)

Length: 260 km (160 mi).

Width: 400 m (1300 ft) near mouth.

Drainage Area: 13,600 sq km (5,250 sq mi) into Arctic Sound of Bathurst Inlet.

Description:

This river was only surveyed to Wilberforce Falls. The lower 20-25 km (12-15 mi) of the river flow through a wide valley. The riverbed is mainly sand, gravel and silt. Just south of the mouth of the river, there is a small shallow waterfall which is probably sufficient to block upstream fish migrations. Upstream of this falls the Hood River flows through a deeper valley and meanders over a wide bed of gravel and larger rock fragments. The exception to the above exists at Wilberforce Falls 49 m (160 ft) high and the deep gorge which extends several kilometers below the falls. The falls and the gorge are of red sedimentary rock of which the Wilberforce Hills are formed. Within the study area are three lakes, Torp, Kunes and McAvoy which are situated about 67°20'N and 109°30'W and drain to the Hood River.

South of the study area the Hood River mainstem flows from the west where the drainage basin lies adjacent to those of the Coppermine and Tree rivers.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
08-07-76	near mouth	seine	6 broad whitefish 100 *Coregonus* sp	immature whitefish and/or cisco
07-07-76	Hood River d/s of James River	seine	1 Arctic grayling 2 slimy sculpin 70 *Coregonus* sp	immature adults whitefish and/or cisco
07-08-76	67°N mainstem	seine	negative	2 unidentified fish observed

KUNES and McAVOY LAKES

Date	Location	Method	Fish Species
07-07-76	water temp. 5°C 80% ice cover	gillnet	1 lake trout

Comments:

The lower Hood River should be considered as a possible migration route for anadromous Arctic char.

HIUKITAK RIVER (#60 - FIG. 1)

Length: 130 km (80 mi).

Width: 120 m (400 ft) near mouth.

Drainage Area: approx. 3700 sq km (1428 sq mi) into east Bathurst Inlet.

Description:

The lower 15 km (9 mi) of the river are extremely sandy, broad and swift flowing. Upstream of the point where the river veers south, the riverbed alternates between sandy regions and rocky rapids. Further upstream, near and in the long series of headwater lakes, the substrate is mainly boulders. There are some vegetated shallows in quiet areas especially around the mouth of tributary streams. Approximately 40-50 km (25-31 mi) of the lower river flow through a moderately steep valley consisting of hills rising about 100 m (300 ft), 2 km (1.2 mi) on either side of the river. Except for some overlying diabase near the coast, the region is high, rough granite country. Near the headwaters the granite hills are quite rounded and boulders persist on the lake shores.

The water is clear for most of the river's length and is only slightly greyish as it empties into Bathurst Inlet.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
09-07-76	sand bar at mouth water temp. 11°C	seine	1 starry flounder	
10-07-76	mainstem 67°02'N and 106°08'W	seine	1 lake trout	adult
			1 round whitefish	adult
			1 Arctic grayling	immature
			1 Arctic char	immature
		angling	3 lake trout	adults
10-07-76	headwater lake 67°14'N and 106°07'W water temp. 12°C	seine	4 ninespine stickleback	adults
		gillnet	negative	
07-08-76	lake 67°12'N and 106°15'W	seine	negative	
08-08-76	lake 67°12'N and 106°15'W water temp. 15°C	gillnet	3 lake trout	adults
			3 humpback whitefish	adults
			1 cisco sp	adult

Date	Location	Method	Fish Species	Remarks
08-08-76	mainstem 67°05'N and 106°53'W water temp. 16°C	seine	70 Arctic grayling	immature
			30 round whitefish	immature
			1 Arctic char	immature
			1 whitefish sp	immature

Comments:

Natives of Bathurst Inlet report a sizeable Arctic char run in this river. The presence of juvenile char in the headwater lakes suggests that the fish may migrate the length of the river.

FOOTPRINT RIVER (#61 - FIG. 1)

Length: 30 km (20 mi).

Width: 30 m (100 ft) near mouth.

Drainage Area: 412 sq km (159 sq mi) into Bathurst Inlet.

Description:

The drainage area of this river is basically rough, barren Laurentian shield country. The lower portion flows between steep cliffs of diabase or basalt. Within a few kilometers of the coast the banks of the river are of rock or coarse gravel. The river mouth is broad and shallow as it fans out upon exiting from the cliff region. Further inland the banks of the river are well vegetated wherever the current is slow and the bed substrate is of rocks. The water was clear except at the mouth where it was slightly turbid on 08-07-76.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
08-07-76	mouth water temp. 12°C	seine	1 Arctic grayling	adult
		angling	8 lake trout	adults

Comments:

Several residents of Bay Chimo were camped near the river's mouth and caught Arctic char and lake trout in gillnets set in the bay, near the mouth.

RIVER OF WALKER BAY (#62 - FIG. 1)

Length: 40 km (25 mi).

Width: 30 m (100 ft).

Drainage Area: 635 sq km (245 sq mi) into Walker Bay.

Description:

This river provides drainage for the western portion of the Kent Peninsula west of Nauyuk Lake (#63 - FIG. 1). Almost all of this area is flat lowlands and marsh or tundra ponds. About one-half of the area is less than 30 m (100 ft) elevation and the largest lakes are at elevations of 9-12 m (30-40 ft). The stream bed in many places is a soggy silt. The lake shores near the fringes of the drainage area are generally quite rocky. The outlets of most lakes exhibited little more than trickle flow on 12-07-76. The lower portion of the river is basically silt with occasional banks of gravel and stones.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
11-07-76	3 km (2 mi) u/s of coast	seine	200 sculpin sp	immature
11-07-76	20 km (12 mi) u/s of coast	seine	1 ninespine stickleback	adult
12-07-76	headwater lake 68°20'N and 107°58'W	gillnet	10 lake trout 5 least cisco	adults adults
12-07-76	headwater lake 68°28'N and 107°55'W	gillnet	10 lake trout 15 least cisco	adults adults

Comments:

Examination of lake trout stomachs revealed slimy sculpins and ninespine stickleback.

NAUYUK LAKE (#63 - FIG. 1)

Length: maximum 6.5 km (4.0 mi) maximum depth 51.5 m (168.9 ft).

Surface Area: approx. 27 sq km (10.4 sq mi).

Drainage: into Parry Bay via a short river (200 m; 656 ft length) then into Bathurst Inlet.

Comments:

Due to the presence of Fisheries and Marine Service research personnel conducting a program on the Arctic char of the lake, no sampling was initiated by the ALUR fisheries crew. Fish species present in Nauyuk Lake are Arctic char, lake trout, humpback (lake) whitefish, Arctic cisco, least cisco, deepwater sculpin and ninespine stickleback.

Most of the anadromous char population overwinters in Nauyuk Lake itself under the ice which reaches a thickness of 1.8-2.1 m (6-7 ft). During breakup of the ice in June and early July over 90% of these fish make a feeding migration to Parry Bay, remaining at sea until their return in August and September (Johnson and Campbell 1975).

For a more complete description of the area and the habits of the Arctic char of Nauyuk Lake the following papers may be consulted:

Johnson, L. and J. Scott Campbell. 1975. The seaward migration of Arctic char (*Salvelinus alpinus*) out of Nauyuk Lake, Kent Peninsula, Northwest Territories. Paper presented at the 28th annual meeting of the Canadian Conference on Freshwater Fisheries Research. January 1975. Vancouver, British Columbia.

Campbell, J. Scott and L. Johnson. 1976. Interlake movement of Arctic char (*Salvelinus alpinus*) in the Nauyuk Lake system, Kent Peninsula, Northwest Territories. Paper presented at the 29th annual meeting of the Canadian Conference for Fisheries Research. January 1976. Ottawa.

Johnson, L. and J. Scott Campbell. 1976. Production of char (*Salvelinus alpinus* L.) in the Nauyuk Lake System of Arctic Canada and its exploitation by the Eskimo. Paper presented at the second European Ichthyology Congress. Setpebmer 1976. Paris, France.

BEAUFORT RIVER (#64 - FIG. 1)

Length: 25 km (16 mi).

Width: 10 m (33 ft) near mouth.

Drainage Area: 100 sq km (40 sq mi).

Description:

This river is small, fast flowing and drains a few small lakes in the flat eastern portion of the Kent Peninsula. There are a few old beach lines in the area and the terrain is generally gravel covered with lichen. The riverbed is primarily rocky and a small waterfall exists about 4 km (2.5 mi) upstream of the coast. On 12-07-76 this falls appeared impassable to fish migrating upstream, however, at higher flows it may be a different situation.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
12-07-76	below falls	seine	ninespine stickleback	adults

Comments:

The river and some of the headwater lakes probably freeze solid in most winters and it would appear unlikely that Arctic char migrate into this system.

KOIGNUK RIVER (#65 - FIG. 1)

Length: 90 km (55 mi).

Width: 100 m (325 ft) near mouth.

Drainage Area: 2850 sq km (1100 sq mi) into Hope Bay of Melville Sound.

Description:

The major physical feature of this river is the series of lakes about 35 km (22 mi) south of Hope Bay. These lakes and most of the drainage area of the river are in an area of rounded granite hills. The lake shore is mostly rocky with occasional sand or soil overlay especially where the river enters the lake at the south end.

The river drains a large number of smaller lakes located in similar terrain. The lower 15 km (9 mi) of the river are relatively deep and quiet. Banks consist of sand and gravel or silt. Between this portion and the large lake upstream, the channel is more tortuous with numerous rapids. A waterfall is present about 20 km (12 mi) south of Hope Bay. It probably constitutes a blockage to upstream fish migrations.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
10-07-76	headwater lake 67°27'N and 106°10'W	seine	4 ninespine stickleback	adults
		gillnet	1 lake trout	adult
10-07-76	large lake 60% ice cover 67°42'N and 106°26'W	seine	1 slimy sculpin	
07-08-76	south end of large lake water temp. 14°C	seine	1 Arctic grayling	35 mm immature
			4 whitefish sp.	25-35 mm
			20 cisco sp.	25-35 mm
			1 ninespine stickleback	
11-07-76	large lake	gillnet	6 lake trout	adults
08-08-76	large lake south end	gillnet	6 lake trout	479-730 mm
			1 round whitefish	413 mm
11-07-76	10 km (6 mi) u/s mouth water temp. 10°C	seine	26 whitefish sp	avg. 75 mm
			12 cisco sp	60-75 mm
			4 ninespine stickleback	

Date	Location	Method	Fish Species
10-07-76	mouth	seine	1 Arctic flounder 4 ninespine stickleback
11-07-76	mouth	seine	sculpin sp

Comments:

Test netting by Fisheries and Marine Service in 1975 at the river mouth yielded Arctic char and broad whitefish. It is probable that both species and ciscoes are anadromous, overwintering and spawning in the lower portion of the river.

STREAM REPORTS

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RUFUS RIVER (#1 - FIG. 2)

Length: approx. 40 km (24.8 mi).

Width: not recorded.

Drainage Area: 485 sq km (188 sq mi) draining into the Beaufort Sea.

Description:

This river drains a small area of southern Banks Island containing the highest plateau of the region. The lower few kilometers of the river flow through a broad valley but inland the valley walls are steep and occasionally sheer. The eastern branch of the river originates in a small lake in an area called Durham Heights. This lake still had more than 90% ice cover on 17-07-76. A similar but smaller lake at 71°13'N and 23°03'W had shores of fragmented sedimentary rocks up to 0.5 m (1.6 ft) in diameter.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
17-07-76	headwater lake 71°13'N and 123°03'W water temp. 4°C	dipnet	lake trout	immature, tentative ID.

NELSON RIVER (#2 - FIG. 2)

Length: approx. 35 km (22 mi).

Width: not recorded.

Drainage Area: 370 sq km (143 sq mi) into Amundsen Gulf.

Description:

The river drains a portion of the plateau area of southern Banks Island and flows southeast to the coast through a relatively broad valley. The upper portion of the river has a bed of angular rock and shale but towards the mouth the bottom consists of mud and silt. A notable feature of this river on 17-07-76 was that its water was extremely turbid.

Sample Location Data:

Date	Location	Method	Fish Species
17-07-76	5 km (3 mi) u/s of mouth	seine	negative
17-07-76	coastal lake draining into river	seine	negative

Comments:

It is possible that, owing to the small drainage area and shallow headwater lakes, the entire river system freezes solid in winter.

ATITOK RIVER (#3 - FIG. 2)

Length: approx. 35 km (22 mi).

Width: not recorded.

Drainage Area: 310 sq km (120 sq mi) into Beaufort Sea.

Description:

This is a small stream draining rolling plateau terrain through which the river channel has cut a steep valley. There are no large headwater lakes; the tributaries generally originate from small rocky or gravel lakes. The river flows over a bed of fragmented rock in the upper reaches with muddy stretches near the coast. The water has a slight brownish tinge increasing in colouration downstream to the coast.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
17-07-76	headwaters water temp. 16.5°C	seine	negative	
17-07-76	coastal lake draining into river water temp. 9.5°C	seine	20 *Salvelinus* sp	immature tentative ID - Arctic char

MASIK RIVER (#4 - FIG. 2)

Length: approx. 60 km (37 mi).

Width: not recorded.

Drainage Area: 3400 sq km (1314 sq mi) into Beaufort Sea.

Description:

The broad valley of the Masik River cuts through rolling plateau terrain which is the general topography of most of the interior of southern Banks Island. The valley is very steep along some of the upper tributaries and has more gently terraced hills along the lower mainstem. The riverbanks are generally of soft mud where tributaries enter and the riverbed often has angular chunks of sedimentary rock. The water is extremely turbid, more so than any other stream sampled on Banks Island during the 1976 survey. The river is generally shallow, no more than 1.5 m (5 ft) in mid July of 1976.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
16-07-76	headwater lake water temp. 3°C	seine	15 *Salvelinus* sp	immature tentative ID Arctic char
16-07-76	river fork 123°08'W water temp. 11°C	seine	negative	
16-07-76	lake outlet* 71°35'N and 123°12'W water temp. 6°C	seine	2 *Salvelinus* sp	immature tentative ID 1 lake trout 1 Arctic char
16-07-76	*above lake	gillnet	2 Arctic char 3 lake trout	adults adults
16-07-76	5 km (3 mi) u/s of mouth water temp. 12°C	seine	1 Arctic char	immature

SANDHILL RIVER (#5 - FIG. 2)

Length: approx. 27 km (17 mi).

Width: not recorded.

Drainage Area: 162 sq km (63 sq mi) into Windrum Lagoon then to De Salis Bay.

Description:

The Sandhill River originates in a small lake (approx. 1000 m; 3280 ft in length) at an elevation of 366 m (1200 ft). The lake lies between two headwater tributaries of the Masik River (#4 - FIG. 2). The upper portion of the river is generally shallow and gravelly with stretches of riffles. In the lower portion there is a sand and pebble flood plain several kilometers wide and extending to the coast near Windrum Lagoon. The river receives a number of small tributaries from the line of hills that marks the southwest margin of its valley. It also drains several small lakes to the northeast where the valley walls are generally less steep.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
16-07-76	headwater lake water temp. 5°C 60% ice cover	seine	80 *Salvelinus* sp	immature - tentative ID. Arctic char
21-07-76	headwater lake water temp. 5.5°C	seine	6 *Salvelinus* sp	immature

Comments:

It is possible that the Arctic char population in the headwater lakes is anadromous although the river in mid July of 1976 appeared difficult for fish to ascend.

DE SALIS RIVER (#6 - FIG. 2)

Length: approx. 40 km (25 mi).

Width: not recorded.

Drainage Area: 645 sq km (249 sq mi) draining to Windrum Lagoon.

Description:

The river drains a series of lakes in the rolling plateau area 20-30 km (12-19 mi) north of De Salis Bay. The lower 15 km (9 mi) of the river flow through a wide low plain which surrounds Windrum Lagoon. The surface of this plain is generally muddy although the riverbed contains some sand and gravel. The water in the lower river was very turbid and no more than 1.5 m (5 ft) deep on 21-07-76. At approximately 22 km (14 mi) north of De Salis Bay, the mainstem of the river flows out of the south end of a lake 3 km (2 mi) in length. The upper river flows into the north end of the lake at elevation 139 m (455 ft). The upper river is generally shallow, clear and gravelly.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
20-07-76	north end of lake water temp. 5°C	seine	1 lake trout 7 *Salvelinus* sp	adult immature - tentative ID. Arctic char
20-07-76	lake	gillnet	1 lake trout	adult
21-07-76	mouth at Windrum Lagoon	seine	several sculpin sp	adults

Comments:

The water of Windrum Lagoon is slightly brackish and very turbid. It was not ascertained whether or not the Arctic char population in the river headwater lake was anadromous. The lake appeared to be accessible to fish migrating from De Salis Bay.

SACHS RIVER (#7 - FIG. 2) and RADDI LAKE (#8 - FIG. 2)

Length: approx. 100 km (62 mi).

Width: not recorded.

Drainage Area: not calculated.

Description:

The Sachs River originates in the rolling plateau country between the Masik and Kellet Rivers (#4 and 9 - FIG. 2). The river has many tributaries and a few scattered lakes. Almost all of the headwater branches merge into one channel which flows into the north side of Raddi Lake (#8 - FIG. 2). This lake is roughly circular, 3-4 km (1.9-2.5 mi) across, with gravel and mud shores, and slightly turbid water. The outlet of Raddi Lake forms the mainstem of the Sachs River which flows approximately parallel to the coast for 30-35 km (18.6-21.7 mi) before veering southwest and opening into a lake known locally as Fish Lake. The riverbed in this stretch is generally gravel with some silt bars. Fish Lake is gravel shored and about 4 km (2.5 mi) in length. The river flows out of Fish Lake as a broad, moderately deep channel which after about 5 km (3 mi) again becomes narrow with a gravel bed. The river eventually opens into a series of lakes which merge into Sachs Harbour. The water upstream of Raddi Lake is quite turbid while the middle and lower reaches of the river are only slightly turbid.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
16-07-76	inlet to Raddi Lake	seine	200 cisco sp	immature
			2 whitefish sp	immature
			100 unidentified fry	*Coregonus* sp
16-07-76	Raddi Lake	gillnet	17 lake trout	adults
			1 Arctic char	adult
			1 humpback whitefish	adult
16-07-76	outlet of Fish Lake	seine	1 Arctic char	immature
			7 *Salvelinus* sp	immature, tentative ID. Arctic char
16-07-76	Fish Lake water temp. 7°C	gillnet	6 lake trout	adults
			2 Arctic char	adults
17-07-76	outlet to headwater lake 71°43'N and 123°28'W	seine	1 ninespine stickleback	adult
			25 *Salvelinus* sp	immature, tentative ID. Arctic char

Date	Location	Method	Fish Species	Remarks
20-07-76	outlet to headwater lake 71°50'N and 123°45'W water temp. 6°C	seine	7 ninespine stickleback	adults
			3 *Salvelinus* sp	immature, tentative ID. 1 lake trout 2 Arctic char

Comments:

The Arctic char in Fish Lake are probably anadromous as a char run is known to occur in the lower river. Whether or not the char in the most easterly headwater lakes are anadromous is not known. No obvious obstacles to fish migration were seen in the river channel.

Upstream of Raddi Lake the eggs of whitefish and/or cisco species hatch in spring or early summer.

KELLETT RIVER (#9 - FIG. 2)

Length: approx. 135 km (84 mi).

Width: delta at mouth about 3 km (2 mi).

Drainage Area: 2720 sq km (1050 sq mi) into Beaufort Sea.

Description:

The lower 60 km (37 mi) of the Kellet River form a shallow, gravel, braided stream flowing through a broad low valley. Further upstream the river is generally a single channel, the bed remains basically gravel with a few mud areas, and the valley is narrower and shallower. (Refer to general description of Banks Island west coast rivers in the Description of Study Areas section.)

There are several lakes draining to the river at about 65-75 km (40-47 mi) upstream of the mouth and numerous small headwater lakes. Most of these lakes still had more than 50% ice cover in mid July of 1976.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
16-07-76	32 km (20 mi) u/s of mouth water temp. 12°C	seine	4 ninespine stickleback	adults
16-07-76	lake 71°53'N and 123°52'W	seine	1 *Salvelinus* sp	immature, tentative ID. Arctic char
16-07-76	lake 71°53'N and 123°52'W water temp. 5°C	gillnet	1 lake trout 1 Arctic char	adult adult
16-07-76	lake 71°48'N and 122°17'W 70% ice cover water temp. 4.5°C	seine	4 *Salvelinus* sp	immature

Comments:

Due to the small discharge of the outlet stream of the lake at 71°53'N and 123°52'W it seems unlikely that the Arctic char in that lake are anadromous but the possibility of migrations of that species exists within the Kellet River.

SIK SIK LAKE (#10 - FIG. 2)

Description:

This is local name for the lake and stream that drain to a coastal bay north of Sik Sik Point. The lake appeared deep and had about 60% ice cover on 19-07-76. The lake water was clear with a temperature of 5°C.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
19-07-76	outlet of lake	seine	1 ninespine stickleback	adults
			3 *Salvelinus* sp	immature
			4 Arctic char	immature
		angling	1 lake trout	adult

Comments:

Residents of Sachs Harbour report that the lake contains many lake trout.

BIG RIVER (#11 - FIG. 2)

Length: 175 km (109 mi).

Width: delta at the mouth is about 4 km (2.5 mi) across.

Drainage Area: 6775 sq km (2615 sq mi).

Description:

This river is typical of Banks Island west coast rivers described in the Description of Study Areas section. Its extreme headwaters are in an area of many lakes approximately 40 km (25 mi) north of De Salis Bay. Some lakes are within 20 km (12.5 mi) of the east coast of the island. Small lakes and ponds are scattered throughout the drainage area. The riverbed is generally of gravel or pebbles and the water clear except in the lower reaches where it is slightly turbid. The large extreme headwater lakes are generally quite deep with gravel or rock shorelines. Most lakes had more than 50% ice cover in late July of 1976.

There are several large tributary streams, notably the Egg River, which display similar characteristics of swift currents and gravel stream beds.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
19-07-76	lake 72°17'N and 123°55'W water temp. 9°C	seine	12 ninespine stickleback	adults
			2 *Salvelinus* sp	immature, tentative ID. Arctic char
19-07-76	Big River mainstem 123°W water temp. 12°C	seine	8 ninespine stickleback	adults
19-07-76	headwater lake 72°09'N and 122°25'W water temp. 8°C	seine	100 *Salvelinus* sp	immature, tentative ID. Arctic char
19-07-76	headwater lake 72°10'N and 122°29'W water temp. 6.5°C	seine	4 *Salvelinus* sp	immature, tentative ID. Arctic char
			5 ninespine stickleback	adults
19-07-76	inlet to lake 71°47'N and 121°16'W water temp. 6°C	seine	75 *Salvelinus* sp	immature, prob. Arctic char
		angling	3 lake trout	adults
		gillnet	17 lake trout	mature and ripening

Date	Location	Method	Fish Species
19-07-76	Big River mainstem 71°15'N and 121°10'W water temp. 12°C	seine	negative

Comments:

It is not known whether or not there is a migration of anadromous Arctic char into the Big River. The lake trout found in the lake at 71°47'N and 121°16'W probably spawn near the inlet stream over the gravel shoals of the lake.

STORKERSON RIVER (#12 - FIG. 2)

Comments:

This river is typical of Banks Island west coast rivers (see Description of Study Areas). No fish were caught in this river by seining on 21-07-76 at 72°40'N and 122°15'W. The water was clear and had a temperature of 11°C.

BERNARD RIVER (#13 - FIG. 2)

Length: approx. 220 km (137 mi).

Width: delta at mouth is about 6 km (3.7 mi) across.

Drainage Area: 10,285 sq km (3970 sq mi).

Description:

This river has the largest drainage area of any river on Banks Island. A typical west coast river (see Description of Study Areas), it has a broad low-lying valley for most of its length and a generally gravel bed. There are numerous small lakes and ponds scattered throughout the drainage area but none exceed 5 km (3 mi) in length and most are less than 3 km (1.9 mi). Headwater tributaries are mainly small and gravel bedded. The mainstem is broad, swift, clear and appeared in July of 1976 to be no greater than 2 m (6 ft) in depth. At the mouth, the braided channel is muddy and forms a broad delta. The low-lying flat plain especially near the river's mouth is basically an area of tundra ponds and soft mud. The water becomes slightly turbid near the coast.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
21-07-76	headwater lake 72°40'N and 122°10'W water temp. 10°C	seine	negative	
21-07-76	headwater lake 72°11'N and 121°01'W water temp. 5°C	seine	negative	
		angling	1 lake trout	adult
		gillnet	1 lake trout	adult
25-07-76	mainstem of river 122°30'W	seine	negative	

CREEK AT BURNETT BAY (#14 - FIG. 2)

Comments:

A small headwater lake 1 km (.6 mi) in length at approximately 73°42'N and 122°40'W drains to Burnett Bay via this stream which was only a trickle on 26-07-76. Seining in the lake gave 1 *Salvelinus* sp tentatively identified as an immature Arctic char. Water temperature of the lake was 8°C.

CREEK AT BAR HARBOUR (#15 - FIG. 2)

Comments:

This stream drains several small lakes and about 200 sq km (77 sq mi) of low hills near the north coast.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
26-07-76	headwater lake 74°22'N and 122°33'W water temp. 5°C	seine	5 *Salvelinus* sp	immature, tentative ID. Arctic char
26-07-76	headwater lake 74°23'N and 123°52'W water temp. 7°C	seine	15 *Salvelinus* sp	immature, prob. all Arctic char

BALLAST BROOK (#16 - FIG. 2)

Comments:

This is a small river which on 26-07-76 meandered through a wide, dry, gravel and pebble flood plain. The water was clear and shallow and seining at about 13 km (8 mi) upstream from the coast produced no fish.

THOMSEN RIVER (#18 - FIG. 2) including MUSKOX RIVER (#17 - FIG. 2) and LAKE 242 (#23 - FIG. 2)

Length: 235 km (146 mi).

Width: 2 km (1.2 mi) at mouth

Drainage Area: 9325 sq km (3600 sq mi) into M'Clure Strait.

Description:

This river has the second largest drainage area of Banks Island rivers and drains most of the interior of the northeastern portion of the island. There are several lakes of up to 5 km (3 mi) in length within 60 km (37 mi) of the river's mouth. The majority of large lakes in the drainage area occur more than 100 km (62 mi) south of the north coast mouth. From its headwater lakes 20 km (12 mi) northwest of Jesse Harbour the river flows north as a small stream in a wide sandy channel joined by numerous small tributaries. About 50 km (30 mi) north of its origin the river widens into a lake and swings to the east. For approximately the next 30 km (18 mi) there is a series of long lakes alternating with gravel river sections. This river is then joined by a large tributary which drains a number of lakes to the south. For the next 100 km (62 mi) the river flows north in a generally gravel, occasionally rocky channel through an area of rolling hills or plateau. In July of 1976 this stretch of river was slightly turbid and shallow (less than 1 m; 3 ft deep). Near the confluence with the Muskox River (#17 - FIG. 2) the Thomsen River becomes deeper, quieter and more turbid. Slightly downstream of the Muskox River mouth the mud banks dropped off quickly into water depths of at least 2 meters (6 ft). The water had a grey-brown appearance on 27-07-76. From this point downstream to Castel Bay the river becomes more sluggish with large silt islands splitting the channel.

The largest lake draining to the Thomsen River occurs at 73°03'N and 118°45'W and has a maximum length of about 10 km (6 mi). In contrast to most of the larger lakes of the area it is quite turbid and apparently shallow. In late July of 1976 it was ice free while all other large lakes still had extensive ice cover. The lake at 72°33'N and 119°45'W had approximately 98% ice cover on 22-07-76. The large turbid lake has an elevation of 73.8 m (242 ft) and is referred to in this report as Lake 242.

At about 35 km (22 mi) south of Castel Bay, the Muskox River flows from the west into the Thomsen River. The Muskox is a small river about 55 km (34 mi) long with a drainage area of 1125 sq km (434 sq mi). Small headwater lakes are scattered throughout the drainage area. The stream bed is generally gravel with occasional mud banks especially where it meets the Thomsen River.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
21-07-76	headwater lake 72°23'N and 120°35'W water temp. 2.5°C	seine	negative	
		gillnet	negative	
22-07-76	headwater lake 72°35'N and 119°45'W water temp. 7°C	seine	6 *Salvelinus* sp	immature
		gillnet	2 lake trout	adults
23-07-76	Thomsen River headwater 72°44'N and 119°50'W water temp. 10.5°C	seine	3 Arctic char 2 ninespine stickleback	immature adults
23-07-76	Thomsen River east headwaters 72°40'N and 119°55'W water temp. 11.5°C	seine visual	negative 1 *Salvelinus* sp	immature
25-07-76	lake outlet 72°53'N and 119°27'W	seine	1 ninespine stickleback	adult
25-07-76	lake 72°49'N and 120°01'W water temp. 5°C	seine	negative	
25-07-76	lake 72°48'N and 120°37'W water temp. 9.5°C	seine	12 ninespine stickleback 1 *Salvelinus* sp	adults immature, prob. Arctic char
27-07-76	Thomsen River d/s of Muskox River water temp. 12°C	seine	5 cisco sp 1 cisco sp	immature adult tentative ID. least cisco
28-07-76	stream joining two lakes 73°38'N and 119°45'W water temp. 6°C	seine	25 *Salvelinus* sp	immature, tentative ID. Arctic char
		gillnet	negative	

Date	Location	Method	Fish Species	Remarks
27-07-76	Thomsen River 73°27'N water temp. 11°C	seine	1 ninespine stickleback	adults
27-07-76	Thomsen River 73°27'N	seine	112 cisco sp	immature
27-07-76	Shoran Lake 73°32'N and 120°20'W water temp. 9°C	seine	100 ninespine stickleback	adults
			5 cisco sp	immature
			1 *Salvelinus* sp	immature
28-07-76	Thomsen River 73°58'N	seine	2 Arctic char	immature
			6 cisco sp	immature
			1 *Salvelinus* sp	immature

LAKE 242 (#23 - FIG. 2)

Date	Location	Method	Fish Species	Remarks
28-07-76	lake 242 north side water temp. 9°C	seine	30 cisco sp	immature
			1 least cisco	length 175 mm
		gillnet	2 Arctic char	adults
			2 lake trout	adults

MUSKOX RIVER (#17 - FIG. 2)

Date	Location	Method	Fish Species	Remarks
26-07-76	headwater lake 73°38'N and 121°30'W	seine	negative	
27-07-76	Muskox River 7 km (4.3 mi) u/s of Thomsen water temp. 12°C	seine	4 Arctic char	immature
			1 cisco sp	immature
27-07-76	Muskox River 73°45' and 120°35'W	seine	1 cisco sp	immature

Comments:

The Thomsen River apparently provides a migration route and spawning/nursery areas for anadromous Arctic char and cisco sp. These fish also utilize the major tributaries, e.g. Muskox River. It is not known whether or not the Arctic char and cisco populations of Lake 242 are anadromous but the stream draining that lake is a probable migration route.

MERCY BAY WEST RIVER (#19 - FIG. 2)

Length: about 35 km (22 mi).

Width: not recorded.

Drainage Area: 580 sq km (224 sq mi).

Description:

This river drains an area southwest of Mercy Bay and east of the Thomsen River (#18 - FIG. 2). The drainage area includes a series of stony bedded lakes situated in a low-lying area between hills on the west and a large area of dissected plateau on the east. The river for at least 10 km (6 mi) upstream of the mouth appeared slow with depths greater than 1 m (3 ft), colouration grey and mud banks. Further upstream it is shallower, clearer and has a stone and gravel bottom. The headwater lakes had approximately 50% ice cover on 28-07-76.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
28-07-76	river 73°53'N and 119°21'W water temp. 12°C	seine	5 sculpin sp	adults
27-07-76	lake 73°47'N and 119°35'W	seine	1 *Salvelinus* sp	immature, tentative ID. lake trout
		gillnet	5 lake trout	adults
			1 Arctic char	adult

Comments:

The Arctic char population could be anadromous.

PARKER RIVER (#20 - FIG. 2)

Length: 90 km (56 mi).

Width: not recorded.

Drainage Area: 2600 sq km (1003 sq mi) into Viscount Melville Sound.

Description:

This river drains an area of rolling to flat plateau which constitutes a large portion of northeastern Banks Island. The river and its tributaries have cut narrow valleys with walls varying from gentle slopes to sheer cliffs rising 61-92 m (200-300 ft) above the river channel. Headwater lakes are few in number and generally small. Most lakes are wide, deep sections of the otherwise fast, shallow river. The river bottom varies from mud to gravel to large rocks. This is one of the few rivers of Banks Island where rapids occur. There are several sections of shallow riffles and mild rapids. The water in the upper reaches was generally clear in July of 1976 while near the mouth it became more silty and greyish in colour. During high water the river probably has a high silt load as is suggested by the large outwash fan at the coastal mouth.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
28-07-76	river/lake 73°21'N and 116°40'W water temp. 12°C	seine	negative	
		gillnet	1 Arctic char	adult
28-07-76	river 73°20'N and 116°10' water temp. 14.5°C	seine	negative	
28-07-76	river 7 km (4.3 mi) u/s of coast	seine	negative	
28-07-76	mouth at coast	seine	30 sculpin sp	adults

BOW LAKE* (#21 - FIG. 2)

Comments:

This lake at 73°12'N and 117°19'W, and several nearby lakes of this rolling plateau area, drains east to Prince of Wales Strait. Bow Lake has a gravel and stone bottom, clear water and on 28-07-76 there was about 60% ice cover. A number of fish were observed near the outlet on 28-07-76. A gillnet set then captured 6 Arctic char and 2 lake trout, all adults.

*name unofficial

LAKE 305* (#22 - FIG. 2)

Length: 20 km (12 mi) NW → SE.

Width: 3-8 km (1.9-5.0 mi) NW - SE.

Drainage Area: 670 sq km (260 sq mi).

*name unofficial

Description:

The lake has the largest surface area of lakes on Banks Island and is apparently quite deep. There was about 80% ice cover in late July of 1976. The water was clear and shorelines were of gravel and stone.

Several moderately sized lakes drain into Lake 305 from a few kilometers to the south and about a half dozen small streams enter at scattered locations. Drainage is from the west end of the lake via a stream channel cut through the hills which border the coast in this region. The upper portion of this stream was almost clear and the riverbed mostly gravel. A turbid tributary entering from the north caused the lower reaches of the stream to be somewhat turbid and mud/silt banks were present.

Sample Location Data:

Date	Location	Method	Fish Species	Remarks
25-07-76	lake 305 south end water temp. 4.5°C	angling	8 lake trout	adults
28-07-76	inlet stream south side	seine	12 *Salvelinus* sp	immature, tentative ID. Arctic char
28-07-76	outlet creek water temp. 16°C	seine	200 cisco sp 10 *Salvelinus* sp	immature immature, tentative ID. Arctic char
29-07-76	lake bay south side	gillnet	5 lake trout 2 Arctic char	adults adults

Comments:

Upwards of 100 adult lake trout and Arctic char were seen congregated in the shallows near the inlet stream at the most southerly tip of the lake on 29-07-76. Spawning probably took place there in subsequent weeks.

Anadromous Arctic char probably migrate between Lake 305 and Prince of Wales Strait via the outlet stream. Least cisco may utilize the stream as a migration route as well.

JOHNSON POINT HEADWATER LAKE (#24 - FIG. 2)

Comments:

This large lake at 72°51'N and 118°50'W drains to the east coast near Johnson Point via a smaller lake and a stream. Seining near the outlet of the lake produced no fish on 27-07-76. Many adult fish (lake trout and/or Arctic char) were observed from the air at the location where the outlet stream enters the smaller lake.

UNNAMED LAKE (#25 - FIG. 2)

Comments:

This lake is at 72°25'N and 119°50'W and at an elevation of 131 m (430 ft) above sea level. Seining near an inlet stream on 22-07-76 produced 10 *Salvelinus* sp - immature - tentatively identified as Arctic char. A gillnet set in the lake for 4 hours on 22-07-76 caught 4 adult lake trout.

REFERENCES

Douglas, R. J. W. (ed) Geology and Economic Minerals of Canada. Geol. Surv. of Can., Economic Report No. 1, Queen's Printer 1970.

Dryden, R. L., B. G. Sutherland and J. N. Stein. 1973. An evaluation of the fish resources of the Mackenzie River Valley as related to pipeline development. Vol. II, Department of the Environment, Fisheries Service, Winnipeg, Man. 179 p.

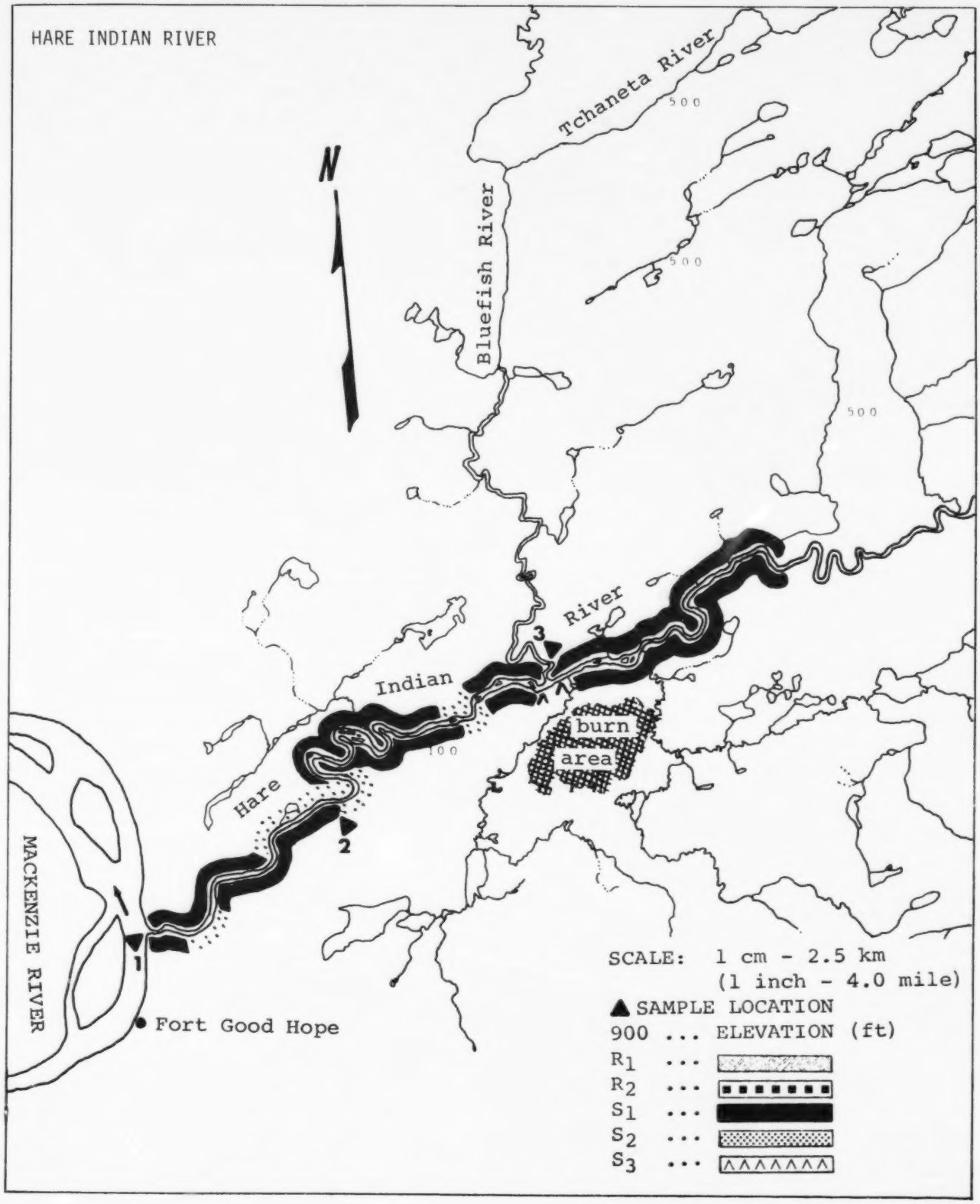
Manning, T. H. 1956. "Narrative of a Second Defense Research Board Expedition to Banks Island, with notes on the country and its history" in Arctic Vol. 9, No.'s 1 and 2.

McPhail, J. D. and C. C. Lindsey. 1970. Freshwater fishes of northwestern Canada and Alaska. Bull. Fish. Res. Bd. Canada 173, X +381 p.

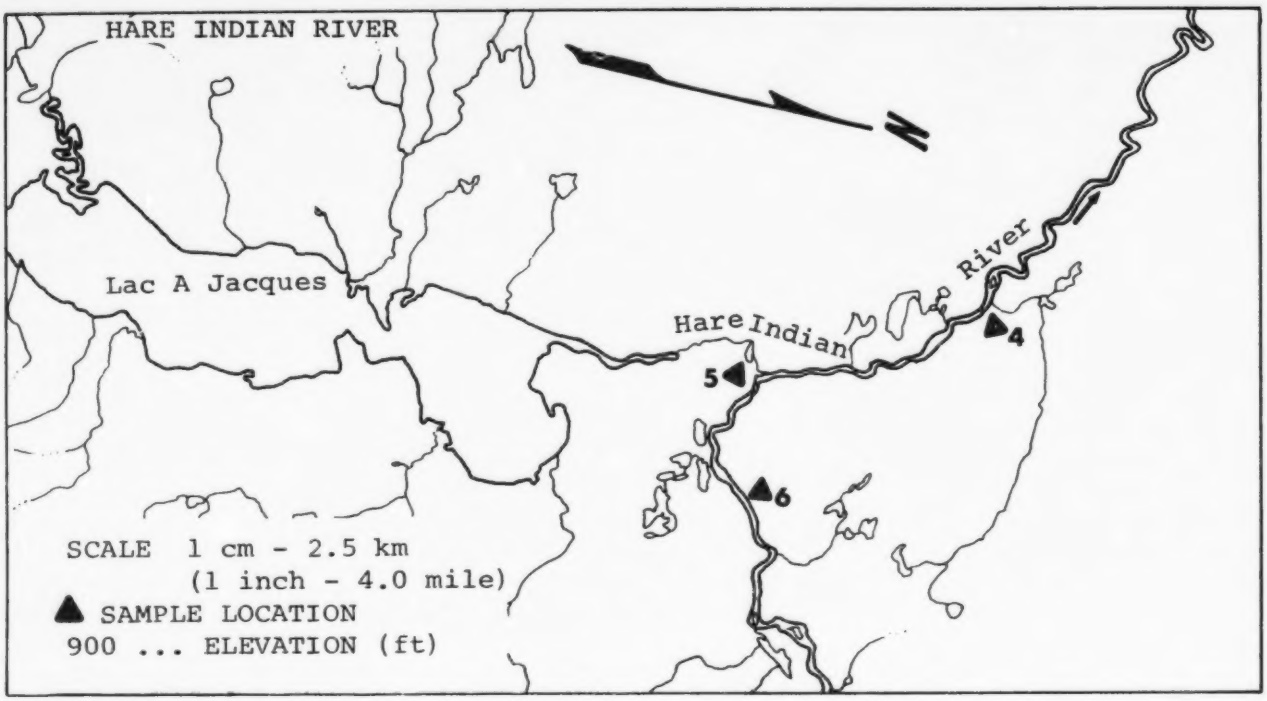
O'Neill, J. J. The Geology of the Arctic Coast of Canada, West of Kent Peninsula, in Report of the Canadian Arctic Expedition 1913-18. Vol. XI: Geology and Geography.

Richardson, Sir John. 1854. Arctic Searching Expedition: A Journal of a boat voyage through Rupertsland and the Arctic Sea in search of the Discovery ships under the command of Sir John Franklin with an appendix on the physical geography of North America. Harper and Brothers Publishers, New York.

Stefansson, U. 1913. My Life With The Eskimo. The MacMillan Company, New York.



ASSESSMENT OF FISH RESOURCES OF THE HARE INDIAN RIVER
SOURCE: R.L. Dryden, B.G. Sutherland, J.N. Stein -
Evaluation of Fish Resources of the Mackenzie River Valley, Volume II, 1973,
Environmental-Social Program, Report No. 73-2, pp.62-66



HARE INDIAN RIVER

Total length 151 miles; drainage area 8,951 sq miles.

Watercourse Type

This is a single channel river with its headwaters in the Colville Hills and its lower reaches running through the Anderson Plain. Near the mouth of the river, the riverbed is composed of fine sand and silt. Both coarse and fine gravel extend the rest of the river's length. The river width (time of visit, 19-06-72) is generally between 120 feet and 150 feet from its mouth to the junction with the Bluefish River. The river has a wide flood plain. The water remains relatively clear throughout the year.

Riverbank Conditions

The riverbank is generally low and stable. The south bank at the 2+ mile mark is 60 feet high, on a 30° slope, and well treed.

The S_2 region from 6 miles to 9 miles has 20 to 30 foot high banks, with minor slope failures which expose the underlying clay material. The S_2 region just downstream of the confluence with the Bluefish River has a 60° slope with evidence of solifluction (drunken trees) and minor slumping.

The S_3 region at the Bluefish River mouth lies within an old burn area. The river bank shows very heavy slumping and tree movement. Overland run-off has formed deep gullies in the bank.

The upper reaches of the river have a very heavy meander with many oxbows, low banks and a wide flood plain which shows little evidence of recent flooding.

Flow Conditions

Date: 19-06-72
Location: Station 2
Estimated width: 120 feet
Estimated current: 3 fps

Assessment of the Fish Resources

Residents at Fort Good Hope report that grayling move out of Lac a Jacques in the spring, in order to spawn in the Hare Indian River. The numbers of grayling and longnose sucker caught in the Hare Indian River indicate that it is an important nursery area. Lac a Jacques supports grayling, whitefish, burbot and pike. The mouth of the Hare Indian River is fished domestically throughout the summer season and to a limited degree during the winter months.

Sample Location Data: Hare Indian River

Location Data			Temp.	Fish Data			
Loc. # & Date	Bottom Type	Colour	Air Water (C)	Catch Method	Species	#	Maturity
#1-72			5				
June 18	unknown	heavy silt	7	gill net	negative		
#1-72			2				
Oct. 12	gravel silt	light rust	1	gill net	broad whitefish	1	mature
					humpback whitefish	4	mature
#2-71			24				
July 10	gravel	clear	16	seine	grayling	12	immature
					white sucker	2	immature
					burbot	1	immature
#2-71			10				
Aug. 06	gravel	clear	14	seine	grayling	2	immature
					slimy sculpin	1	immature
					humpback whitefish	1	immature
					lake chub	300	mature
					longnose sucker	200	immature
#2-71			6				
Sept. 18	gravel	light rust	7	seine	lake chub	61	mature
					longnose sucker	5	immature

Sample Location Data: Hare Indian River Cont'd

Location Data			Temp.	Fish Data			
Loc. # & Date	Bottom Type	Colour	Air Water (C)	Catch Method	Species	#	Maturity
#2-72			19				
June 19	gravel	light rust	12	seine	lake chub	5	mature
					slimy sculpin	2	immature
					longnose dace	1	immature
					grayling	3	immature
#3-71			23				
July 09	gravel	clear	14	seine	slimy sculpin	2	immature
					grayling	4	immature
					lake chub	2	immature
				observed	pike	1	mature
				angling	negative	-	--
#3-71			10				
Aug. 06	gravel	clear	16	seine	lake chub	10	immature
					grayling	3	immature
					slimy sculpin	3	immature
#3-71			9				
Sept. 17	gravel	light rust	7	seine	humpback whitefish	1	immature
#3-72			5				
June 18	gravel	light silt	6	gill net	negative		
#4-72			4				
June 18	unknown	light silt	8	gillnet	negative		
#5-72			5				
June 18	unknown	light silt	5	gill net	negative		
#6-71			22				
July 10	gravel	clear	16	seine	grayling	11	immature
					slimy sculpin	2	immature
#6-71			12				
Aug. 06	gravel	clear	12	seine	grayling	30	immature
					longnose sucker	8	immature
#6-71			5				
Sept. 18	gravel	light rust	6	seine	grayling	135	immature
					lake chub	4	mature
					slimy sculpin	5	immature

Sample Location Data: Hare Indian River Cont'd

Location Data			Temp.	Fish Data			
Loc. # & Date	Bottom Type	Colour	Air Water (C)	Catch Method	Species	#	Maturity
#6-72			5				
June 19	gravel	light rust	6	seine	lake chub	5	mature
					longnose sucker	1	immature
					slimy sculpin	6	immature
					longnose dace	1	immature
					grayling	4	immature
					white sucker	2	immature

APPENDIX II

Alphabetical list of common names and associated generic names for fish caught in the ALUR studies.

Arctic char - *Salvelinus alpinus* (Linnaeus)

Arctic cisco - *Coregonus autumnalis* (Pallas)

Arctic flounder - *Liopsetta glacialis* (Pallas)

Arctic grayling - *Thymallus arcticus* (Pallas)

Boreal smelt - *Osmerus eperlanus* (Linnaeus)

Broad whitefish - *Coregonus nasus* (Pallas)

Burbot - *Lota lota* (Linnaeus)

Fourhorn sculpin - *Myoxocephalus quadricornis quadricornis* (Linnaeus)

Humpback whitefish - *Coregonus clupeaformis* (Mitchill)

Lake chub - *Couesius plumbeus* (Agassiz)

Lake cisco - *Coregonus artedii* (LeSueur)

Lake trout - *Salvelinus namaycush* (Walbaum)

Least cisco - *Coregonus sardinella* (Valenciennes)

Longnose dace - *Rhinichthys cataractae* (Valenciennes)

Longnose sucker - *Catostomus catostomus* (Forster)

Ninespine stickleback - *Pungitius pungitius* (Linnaeus)

Northern pike - *Esox lucius* (Linnaeus)

Pond smelt - *Hypomesus olidus* (Pallas)

Round whitefish - *Prosopium cylindraceum* (Pallas)

Slimy sculpin - *Cottus cognatus* (Richardson)

Starry flounder - *Platichthys stellatus* (Pallas)

Tomcod - *Microgadus tomcod* (Walbaum)

White sucker - *Catostomus commersoni* (Lacepede)

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Walker Bay River	2	60
Wentzel River	2	53
West River	1	13